PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 113, No. 14 Thursday, October 2, 1941 Price Ten Cents

Canadian Industry Cooperates on Chlorine

Consultation of Wartime Industries Control Board With Canadian Pulp and Paper Association Results In New Order On Chlorine—High Alpha Content Pulps Exempted—Rag Stocks Are Affected.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 29, 1941—With the full co-operation of the pulp and paper industry, which it will primarily affect, the Wartime Industries Control Board has issued an order restricting the use of chlorine. Last June a request was made for a reduction in consumption of this material, and this has been effected. Owing to the expanding requirements of this chemical in war industries a further and more detailed form of conservation has now become necessary, and after consultation with F. G. Robinson, the president of the Canadian Pulp and Paper Association, the Board has issued the new order.

High Alpha Content Pulps Exempted

Exemption is provided for the use of chlorine for bacteriological purposes and also for pulps with not less than 90% alpha cellulose content, dissolving pulps, and nitrating pulps. Pulps in which chlorine is a processing rather than a bleaching chemical also are exempt, but applications for exemption must be submitted in writing, together with supporting facts, to the chemicals controller.

New Brightness Standard Adopted

The new regulation provides that the brightness of bleached sulphite and bleached sulphate shall not exceed 76; similarly, the brightness of soda pulp and waste paper when used for conversion into bleached paper shall not exceed 74.

Ruling on Rag Stock Bleaching

For the purpose of bleaching rag stock, the order states further that no pulp or paper manufactuer shall consume in any quarter starting October 1, 1941, a greater amount of chlorine per ton of rag stock treated than 80% of his consumption in the six months ended July 31, 1941. Similarly, for the purpose of making semi-bleached wood pulp, quarterly consumption of chlorine per ton of semi-bleached wood pulp made shall not exceed 70% of per ton consumption in the six months ended July 31, 1941.

The order prohibits any change in the proportion of bleached, semi-bleached, and unbleached pulps in the making of any specific grade of paper, "until adequate brightness standards for paper are established," or any increase in the brightness of any paper beyond that now in effect.

To prevent competitive advantage, it is also ruled that "persons making their own chlorine supply shall conduct their operations so that the resulting effect on the pulp and paper they make shall be similar to that obtaining in other mills under this order."

Philadelphia Paper Men Meet

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., September 29, 1941—At a meeting of the fine and wrapping paper divisions of the Paper Trade Association of Philadelphia, held at the Downtown Club on Tuesday last, LeRoy A. Bishop and Charles P. Wilder, delegates to the Fall convention of the National Paper Trade Association in Chicago September 15-17, reported their observations in the fine and wrapping paper industry respectively. The meeting which was unusually well attended was one of the most interesting in the annals of the association. Messrs. Bishop and Wilder presented the highlights of the talk given by Norbert A. McKenna, chief of the Pulp and Paper Section, Office of Production Management, at the opening session of the Convention.

Union Bag To Expand

An expansion program involving $4,600,000 will be undertaken by the Union Bag and Paper Corporation to increase the daily capacity of its mill at Savannah, Ga., from 692 to 1,000 tons of kraft board, paper and bags has been just announced by Alexander Calder, president.

The project involves more than 250,000 additional square feet of floor space, increased pulp production and installation of a 234-inch paper machine and supplemental equipment. This will bring the capacity of the Savannah plant to its practical maximum. It is hoped that the program may be completed within twelve months, Mr. Calder said.

Paper Mill Employment Continues to Rise

Wisconsin Industrial Commission Reports Gain In August With Weekly Payrolls Up 5.4 Per Cent—To Increase Power To Paper Mills—Supply Paper To Army and Navy—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 29, 1941—The employment curve in Wisconsin paper and pulp mills and allied plants continues upward. Wisconsin Industrial Commission compilations show that there were 24,200 workers on the payrolls in August, compared to 24,100 in July, a gain of 0.6%, and up 8.6% from the total of 22,300 in August of last year. August weekly payrolls were up 5.4% over July, and 22.3% over August, 1940. The total was $727,000 for August, as against $690,000 for July, and $595,000 for August a year ago. Increases granted in some mills recently accounted for the part of the gain, since workers now average 69.3 cents per hour for 43.4 hours of work per week. Weekly pay checks average $30.08.

Converting and carton plants in the Milwaukee metropolitan area stepped up employment 1.8%, with 2,407 on the rolls for August, drawing $67,196 weekly. Payrolls were up 1.5% over July, and the average weekly check is $27.92 at 66.3 cents per hour for an average work week of 42.1 hours.

To Increase Power to Paper Mills

Power needs of the Wisconsin paper mills will be more adequately met through the completion of a 20,000-kilowatt substation at Green Bay, Wis., by the Wisconsin Michigan Power Company of Appleton, Wis. The station permits interconnection of its feeder lines with those of the Wisconsin Public Service Company at a point near the latter's Bayside steam plant at Green Bay.

This interconnection has unusual significance, since it forms the last link in effectively joining all the major generating systems in the state. It completes a huge statewide grid of lines able to pool 90 per cent of the power facilities in the state. It also links the state's largest steam station, Lakeside at Milwaukee, with the largest hydro plant, the Wissota of the Northern States Power Company, near Chippewa Falls, Wis. Each utility will be able to use the available capacity of the other in times of unusual load, or emergencies caused by electrical storms, high wind, sleet or other natural causes, including lack of water at hydro plants.

The Wisconsin Michigan substation and equipment represented an expenditure of $190,000. An additional $10,000 was spent jointly with Wisconsin Public Service Corporation for a tie-line with the nearby towers of the Iron Mountain, Mich., to Appleton, Wis., 132,000-volt line.

Anticipates Dearth of Paper

There is an anticipated dearth in all types of paper before the year is out, in the opinion of John Stevens, Jr., vice-president and purchasing agent of the Marathon Paper Mills Company, Rothschild, Wis. The biggest problem in the Marathon mills, he says, is to obtain sufficient supplies of waste paper for board manufacture. He therefore is in favor of the drive under consideration by the government to collect waste paper, although the lack of sufficient manufacturing capacity is probably the real source of shortages in this line.

Rationing of pulp is expected soon by Mr. Stevens to meet the worst stringency in the present picture, and he expects this to be followed soon by the rationing of paper. He expects mills will be detailed to prepare pulp in large quantities for the rayon and nitro-cellulose industries in order to meet defense manufactures. Big stocks of imported pulp built up at the start of the war have been largely exhausted since Scandinavian shipments were cut off, and the increased production in Canada and the United States has not been sufficient to meet the demands. Newsprint, he finds, is about the only kind of paper of which the supply now seems to be adequate.

Supply Blueprint and Target Paper

Large quantities of blueprint paper are being supplied by the Fox River Paper Corporation, Appleton, Wis., to the United States Navy. The extensive supply needed is shown by graphs prepared by the company, indicating that it takes 30 tons of blueprint paper to carry the plans for one modern battleship.

Manufacture of target paper for the United States Army is being carried on by the Sterling Pulp and Paper Company, Eau Claire, Wis. A recent order was booked with the mill by Bradner, Smith and Company, Chicago, for $79,904 worth of this product.

Kimberly-Clark Installs Dial System

Kimberly-Clark Corporation has completed the installation of a dial telephone system at its mill at Kimberly, Wis. Five trunk lines are provided for outside calls, and the intercommunicating system now provided the mill without operator service takes care of 75 individual stations. The system is also connected with the corporation's main offices at Neenah, Wis., giving access to 360 telephones throughout the office and Neenah mills.

Badger Paper Mills, Inc., is arranging to supply water service to the City of Peshtigo, Wis., in the near future. Four and a half miles of water mains have been laid, and bids are being sought by the city on 19,000 feet of additional mains. Service will be available late this year. The Wisconsin Public Service Commission will announce soon the rate to be paid by the city for the pumpage furnished by the Badger mills, and also the rate to consumers.

S. Meyers Goes With Irving Paper Co.

NASHUA, N. H., September 29, 1941 — Samuel Myers, sales manager of the Pakay Sales Division of the Nashua Gummed and Coated Paper Company, has resigned to become connected with the sales department of the Irving Paper Company, Irving, Mass. Mr. Myers was given a farewell party by his fellow workers before leaving Nashua to assume the duties of his new position.

Waste Paper Market Reflects Uncertainty

Ceiling Prices On Paper Stock and Drive For Larger Accumulation of Waste Paper Reported In Chicago Area Reflect Unusual Market Conditions — Chicago Paper Men Play Golf — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 29, 1941—Much better informed as the result of the fall meetings of the National Paper Trade Association, the Chicago market went ahead this week to do its best under most unusual conditions. With a ceiling on waste paper predicted for next week and a drive for more waste paper going on successfully in this area, the waste paper market reflected the seriousness of the local situation. A discussion of retail department stores as to the possibility of charging for gift wrapping because of the cost of paper further indicated the consumer viewpoint in relation to paper scarcities. There was no question about demand in any market locally. Jobbers were effecting "priorities" of their own and following allocations proceedings to satisfy the demands of a public.

Corwine Roach Discusses Priorities

Corwine E. Roach, president of the Capital City Paper Company of Springfield, and chairman of the Priorities Committee of the Illinois Chamber of Commerce, has just issued to Illinois business a comprehensive discussion of the "Priorities Complex". Mr. Roach strongly recommends equalization of the distribution of defense contracts; equalization of distribution of earmarked priority material; widening of the spread of defense sub-contracts and equalization of the distribution of surplus production material not required for defense production. In company with members of the National Small Business Men's Association, the State Chamber delegation, headed by Mr. Roach, visited Washington this week to ask for some relief. Mr. Roach will also serve as "moderator" at an "Information Please" program to be held during the annual meeting of the State Chamber held in Chicago October 2 and 3. Other experts will represent the manufacturing, accounting and legal divisions of Illinois industry.

Salesmen at Final Golf Outing

The final golf outing of the year for the western division of the Salesmens Association of the Paper Industry took on a really "national" flavor as 104 salesmen and guests participated in the event held at Olympia Fields on September 18. Sales executives from all parts of the country were represented as the prize list indicates. Weather was perfect and after three trying days at the N.P.T.A. sessions the group was ready for an outing which included luncheon, dinner and informal entertainment. It was all a very successful culmination to the series of monthly parties arranged by hard working Ed Rolain of the Mosines Paper Mills Company, chairman of the golf committee. Prize winners as reported by Ed were as follows: low gross, Gene Hammes, Graham Paper Company; second low gross, Fred Post, Jr., Frederick Post Company; low net, 17 handicap and under, J. P. Tyrell, Minneapolis; low net, 18 and over, Arthur Brown, Nekoosa-Edwards Paper Company; second low net, John Gale, Missisquoi Corporation, Sheldon Springs, Vermont; third low net, F. J. Foley, Blandin Paper Company; fourth low net, George E. Chisholm, Union Bag and Paper Corporation, New York; low net, first nine, Harold Pfister, McIntosh Paper Company; second low net, first nine, Bob Dick, Rapinwax Company; low net, second nine, Harry Kerr, Travelers Insurance Company; second low net, second nine, J. D. Dooley, Southern Kraft Corporation; low putts, first nine, N. F. Wicks, Blunden-Lyon Paper Company; low putts, second nine, Ed Hayburn, Bradner, Smith & Company; second low putts ,H. B. Benge, Appleton Coated Paper Company.

The high gross foursome was composed of G. G. Olson and J. H. Sweet of the American Writing Paper Company, Ed Hayburn and Don Cuyler, Whitaker Paper Company, Detroit. Low putt foursome winners were Joe Heyer, Cherry River Paper Company, Fred Leahy, LaSalle Paper Company, F. C. Strong, International Paper Company and J. C. Marvin, Bermingham & Prosser Paper Company. Consolation prizes went to E. L. Walters of the Western Paper Company, Omaha and Bert Lewis, Nicolet Paper Company while door prize winners were A. T. Bermingham of Bermingham & Prosser and Ray Freeman of the McIntosh Paper Company.

Headliner of the entertainment was the piano team composed of Harold Pfister of the McIntosh Paper Company and Harry Kerr, Chicago insurance executive. This duo, always a popular favorite at the Christmas parties, was very much in demand during the informal evening's entertainment hours.

G. J. Frelinger is Promoted

G. J. Frelinger has recently been appointed general manager of the J. W. Butler Paper Company of Chicago. He will succeed C. W. Kirtley who will retain his present post as vice president. Mr. Frelinger has been with the Butler Paper Company for twelve years and has a wide acquaintanceship in Chicago which wishes him the very best of success in his new position.

Paper Association Holds Tournament

The Chicago Paper Association held their annual golf tournament and outing September 11 at the Kildeer Country Club, Prairie View, Ill. Attendance was the largest in the history of the association's outings. Over two hundred merchants, mill men and friends were present to enjoy a day at one of the most picturesque country clubs in the country. Two 18 hole courses, one wooded, the other water, provided for exceptionally interesting golf. More than one-half the golfers played both courses.

This was an all day affair, and in the evening excellent entertainment was provided, which was followed by an Old Timers' program, when many of the pioneers of The Chicago Paper Association were called upon for short talks. After this, followed the awarding of seventy-five prizes, which the club man-

agement stated, were the most beautiful ever seen in many years of tournament experience. The officers of the association are: Samuel Weil, Joseph Weil & Sons, Inc., president; Robert Levinson, Eagle Wrapping Products Company, vice-president; and Robert Knox, Knox & Schneider, secretary-treasurer.

The Chairman of this successful tournament was Henry Borchardt of The Pilcher-Hamilton Co., and members of his committee were: Joseph Druth, Chippewa-Arrow Paper Company; Walter Schulman, Levin Brothers Paper Company; William Shapland, Fred Rentz Paper Company; William Chukerman, J. Chukerman & Sons; Jacob Lubin, Lubin Brothers Paper Company; Ed Schwartz, Hanchett Paper Company; Mort Inlander, Inlander Brothers; Henry Weinstein, Western Bag and Paper Company, Inc.; Leo Altholz, Inlander-Steindler Paper Company; and Robert Knox, Knox & Schneider.

Indianapolis Demand Heavy

INDIANAPOLIS, Ind., September 29, 1941—High volume levels continued to feature the entire paper market in this territory last week. The fall season has started considerably better than that of a year ago and there are no discouraging omens at present. However, the matter of deliveries in some lines is becoming more acute and some jobbers and manufacturers say they are having more and more difficulty in meeting orders. Prices in all grades continued firm to strong.

Building papers and roofing were strong with demand heavy. Builders are having no difficulty in disposing of their new houses and given an open winter, new construction will continue in large volume. Dealers have only fair stocks, however, and are finding it somewhat of a problem to keep them balanced. They would buy more heavily if they could secure deliveries. Prices are being held in line, only advances being made to offset increased handling costs.

The fine paper market is in good shape. Deliveries are somewhat restricted in some lines, but most of the orders can be taken care of. Books, covers and ledgers all are having a good run and prices are firm. Some advances have been made during the last month or so, but jobbers say these are justified because of increasing taxes, trucking and labor costs. Newsprint demand continued heavy. Lineage in practically all the papers of the state is showing increases over a year ago.

Box and container demand is good and most factories are working to capacity with orders in some instances piling up. Warehouse stocks are depleted and the trade is finding it difficult to keep up with orders. The demand base has widened considerably, due to defense orders. Prices are firm to strong.

Local paper stock wholesalers are waiting for some word from Washington on price stabilization. The paper stock market was firm last week with good mill demand. Rag prices showed little change and demand for practically all grades was good.

Heads Boston Community Fund

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 29, 1941—Harold S. Fuller, head of the Bicknell & Fuller Paper Box Company, is chairman of the Metropolitan Committee of the Greater Boston Community Fund.

Work of the Import Committee

The search for substitute materials for various standard grades of paper is resulting in an unusual number of inquiries as to the classification of various types of paper and paper board being imported from Canada according to Warren B. Bullock, Manager of the Import Committee of the American Paper Industry.

Import Committee reports the demand for corrugating material is so heavy that a substitute made of sulphite and ground wood is being imported from Canada in considerable quantities, and is being classified for duty at 30 per cent as paper not specially provided for. Another type of material is now being imported, in thicknesses over 12 points, which is probably admissible as paper board at 10 per cent. The weight of this material if used for corrugating, is one third higher than that of the thinner material imported for corrugating stock. A Canadian shipment of paper board is before the Customs officials for determination of its character, whether it is dutiable as vat lined board or at the lower rate of duty provided for test liner. Customs officials have asked the Import Committee to secure the assistance of domestic manufacturers in determining the classification of an imported mill wrapper. The question involved is whether it is dutiable as sulphite wrapping paper, as vat lined paper board, or plain paper board. Customs officials have also asked the Import Committee for information as to the classification of certain fine threads of twisted paper, in an effort to determine whether this material is known as yarn. It is the component material of Japanese decorated hand bags.

Canadian products for building purposes have come before the Customs officials for consideration. One case involves a tile board which the Customs officials believe to be dutiable at $14.50 per ton as plat finished board, and not dutiable, as claimed by the importer, at the 10 per cent rate for wallboard. Another shipment of insulating board is claimed by the importer to be dutiable as wallboard, but held by the Customs officials to be dutiable as paper board laminated with an adhesive substance at $14.50 per ton. Although the United States Customs Court has held that asphalted duplex kraft paper is dutiable at the rate for kraft wrapping paper, a new attempt is being made by Canadian producers to have the paper admitted at the rate of 10 per cent provided for building paper. Laminated wallboard from Finland classified at 30 per cent but claimed to be dutiable at 10 per cent as held by the United States Court in a recent decision to be dutiable at the higher rate.

Manufacture of Fiber Containers

Under the title of "The Manufacture of Fibre Shipping Containers", by A. W. Werner, a practical and useful booklet has been published by the Board Products Publishing Company, 228 North La Salle street, Chicago, Ill., at $1.50 a copy.

This 70-page, illustrated booklet, is a reprint of the articles published seriallv in *Fibre Containers* during 1940-1941. It presents a clear and comprehensive understanding of the importance and increasing utilization of fiber shipping containers. Requirements and designs of containers, general specifications, description of materials, sizes and varieties of board and testing are discussed. Other chapters treat on equipment, adhesives, coatings, closures and samples.

Canadian Producers Reported Doing Well

Leading Paper and Pulp Mills In Ontario In Favorable Position As Steady Uptrend In Demand Continues—Position of Bankrupt Lake Sulphite Pulp Co. Shows No Change—Other Trade News.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., Sept. 29, 1941—Like operators in other parts of the Dominion the pulp and paper manufacturers of Ontario continue to enjoy a constantly accelerating demand for their products. This demand extends to all kinds of pulp and most paper categories, except newsprint. There is plenty of demand for newsprint, too, but there are more difficulties in the way of getting it to market, chiefly priorities and available shipping space. Rationing has seriously curtailed shipments to important markets.

Since the outbreak of the war Canada has become vitally important to the pulp-using industries of the United Kingdom and the United States. War conditions also thrust upon the industry heavy demands for "fine" papers from the United Kingdom, other parts of the British Empire and countries which previously had relied on European sources of supply.

Position of Lake Sulphite Co. Unchanged

There has been no change in the position of the bankrupt Lake Sulphite Pulp Company, which was incorporated for the purpose of operating a high-grade bleached sulphite and rayon pulp mill at Red Rock, Ont. Original plans called for this mill being in operation early in 1938. Due to various circumstances the mill was never completed and the company went into receivership. Contractors withdrew the partially installed machinery, and, it is understood, this equipment is being installed in an extension to the British Columbia Pulp and Paper Company's plant on the coast. All that now remains of the company is a plant structure and the rights to various timber limits. Had the plant been completed according to schedule it would now, no doubt, be enjoying the same demand for its products as other Ontario mills. The rise in demand and price for sulphite pulp has made rehabilitation of the property more attractive, but still, apparently, not sufficiently attractive to new capital. It would require four to five millions of dollars to place the property in sound operating shape.

Leading Producers in Good Position

Though not classified as a pulp operator, the Abitibi Power and Paper Company is an important Ontario sulphite pulp producer. During the first half of 1941 this company shipped 40,014 tons of bleached sulphite. Revenue from the sale of pulp is not shown in the company's returns, but on the basis of being one-fifth of the newsprint tonnage, it may be assumed to be no small proportion of the total revenue.

The Dryden Paper Company, operating a large kraft paper plant at Dryden, Ont., has had an active year and both operations and earnings of the company have undergone improvement. When it is considered that the operating results for last year were achieved in the face of material reduction in capacity of both pulp and paper due to a water shortage, the expectation of materially higher earnings for the year ended this month should be realized. Operating income in the 1940 fiscal year was given as $313,568, the best in the last ten years and nearly double that reported in 1939.

Changes Made in Great Lakes Co.

Changes made in 1940 in Great Lakes Paper Company, operating a newsprint and unbleached sulphite pulp mill at Fort William, Ont., increased the capacity for making unbleached sulphite, in addition to its own requirements, from 15,000 to 24,000 tons annually. This year capital expenditures of about $150,000 for improvements on the mill and of about $75,000 for a dam and other improvements for opening up and operating the Black Sturgeon timber limits are scheduled. The company has special contracts with a group of publisher-shareholders, resulting from a reorganization carried out in 1936. This group of 25 United States publishers contracted to take a minimum of 67,500 tons of newsprint for 10 years from January 1, 1936, with the option of extending the contracts to December 31, 1950. The group received the entire issue of class B preferred shares and the company has been paying dividends on its class A and B cumulative preference shares for the past two years. Payments totaled $1 a share in 1933 and $1.25 in 1940. So far this year three payments of 25 cents a share have been declared or made. Arrears on the two classes of preferred amount to $9 a share after giving effect to the dividend to be paid October 1, this year.

Bondholders Control M. & O. Paper Co.

The Minnesota and Ontario Paper Company completed a reorganization early this year. The result has been that bondholders have come into complete control of the company, the company's funded debt having been reduced to less than half of previous levels, the interest rate lower, a substantial surplus created and its operations generally placed in a relatively strong position. The company operates paper, pulp and saw mills and power plants at International Falls, Minn., and Fort Frances and Kenora, Ont. The company is constructing an additional power plant this year at International Falls at a cost of $600,000.

In addition to newsprint and specialty papers and kraft, the company has a large output of insulite, an insulating material. For the first half of 1941 the company reported a net income of $1.2 million, a gain of $100,000 over the corresponding period of 1940. The second quarter of the year resulted in practically all of the earnings as the company showed $1.1 million of net income in that period.

Other Concerns Doing Well

The Ontario Paper Company, operating newsprint mills at Thorold, Ont., and Baie Comeau, Que., is the newest addition to Canada's newsprint industry, having been completed in 1938. Its newsprint output goes to its publisher-owners, the Chicago *Tribune*

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Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 1, 1941 — Government Printing Office has received the following bids for 38,400 pounds of 20 x 25 robin's egg antique M.F. cover paper: Bradner Smith & Company, 9.61 cents; R. P. Andrews Paper Company, 9.67 cents; Marquette Paper Company, 9.85 cents; and Butler Company, 10.11 cents.

For 30,000 sheets of 100% rag, 21 x 32 white bond paper: R. P. Andrews Paper Company, at $26.43 per M sheets; Barton, Duer & Koch Paper Company, $22.62; and Whitaker Paper Company, $20.625.

Paper Awards

Mudge Paper Company has been awarded the contract for furnishing the Government Printing Office with 13,932 pounds of 33 x 44 tag board at 11 cents, bids for which were received September 12. Other paper awards recently announced include the following:

Walker, Goulard Plehn Company will furnish 86,000 pounds of 50% rag, 21 x 32 white bond paper at 15.35 cents and R. P. Andrews Paper Company will furnish the same at 15.15 cents. Cauthorne Paper Company will furnish 90,000 pounds of 32½ x 42½ white mimeograph paper at 8.36 cents. Paper Corporation of U. S. will furnish 151,000 pounds of 38 x 48 white offset book paper at 8.88 cents and R. P. Andrews Paper Company will furnish 80,000 pounds of same at 8.48 cents. Bids for all of these items were received on September 12.

Eastern Corp. will furnish 97,600 pounds of 28 x 34 white sulphite writing paper at 7.53 cents, bids for which were received on September 10.

Mudge Paper Company will furnish 10,776 pounds of 36 x 42 buff sulphite index paper at 8.45 cents and Cauthorne Paper Company will furnish 36,000 pounds of 100% rag, 38 x 48 antique book paper at 21.5 cents. Bids for both of these items were received on September 8.

R. P. Andrews Paper Company will furnish 40,000 pounds of 50% rag, white bond paper in 32" rolls at 14.69 cents and Old Dominion Paper Company will furnish 19,200 pounds of 22 x 34, 25% rag, blue bond paper at 13.49 cents. Bradner Smith & Company will furnish 40,000 sheets of 22 x 28 white railroad board at $50.95 per M sheets and the same firm will also furnish 30,000 sheets of same orange at $32.155 per M sheets. Whiting Paper Company will furnish 10,127 pounds of 34¼ x 44, 25% rag, buff bond paper at 14.25 cents and Baxter Paper Company will furnish 61,000 pounds of 50% rag, 28 x 34 white bond paper at 14.95 cents and Mudge Paper Company will furnish 10,000 pounds of 75% rag, 23 x 36 white ledger paper at 21.18 cents. Paper Corporation of U. S. will furnish 200,000 pounds of white sulphite writing paper in 48 inch rolls at 7.64 cents; Mudge Paper Company will furnish 12,086 pounds of sulphite writing paper in 21 inch rolls at 10.82 cents and the same company will also furnish 10,000 pounds of 21 x 32 white sulphite ledger paper at 11.67 cents. Bids for all of these items were received on September 5.

R. P. Andrews Paper Company will furnish 11,500 pounds of 21 x 32, 75% rag, white ledger paper at 18.5 cents. Bird & Son, Inc., will furnish 12,000 sheets of 30 x 36 gray pressboard at $192 per M sheets and Nashua Gummed & Coated Paper Company will furnish 12,000 sheets of 24 x 36 brown cloth lined paper at $129.70 per M sheets. Chicago Paper Company will furnish 80,000 pounds of 25% rag, white bond paper in 32 inch rolls at 12.75 cents and Whitaker Paper Company will supply the same quantity at 13.8 cents. Bids for all of these items were received on September 3.

Marquette Paper Company will furnish 100,000 pounds of white sulphite writing paper in 48 inch rolls at 7.37 cents. Bradner Smith & Co. will furnish 100,000 sheets of 22 x 28 railroad board at $25.526 per M sheets. Marquette Paper Company will also furnish 100,000 pounds of white sulphite writing paper in 25½ inch rolls at 7.37 cents. Mudge Paper Company will furnish 32,400 pounds of 50% rag, 14 x 20 white lithograph finish map paper at 16.5 cents and the same company will also furnish 23,000 pounds of 50% rag, 18 x 20 same at 16.5 cents. Bids for these items were received on August 29.

To Conserve Paper Containers

Conservation of shipping containers through reuse, reduced thickness, decreased number of styles and sizes, less interior packing, fewer individual packages and greater use of bulk shipments, was recommended by speakers at a special shipping container conference held by the American Management Association at the request of the Office of Production Management at the Hotel New Yorker, on September 26.

The following points brought out at the morning and afternoon sessions were:

Some shortages have already developed, but they will not be fully felt until next year.

The requirements for shipping containers for the lease-lend program will be huge.

Direct Army requirements may start to decline shortly and delivery dates have been extended to as much as 330 days.

Norbert A. McKenna, chief of the pulp, paper, printing and publishing section of OPM, said that his office wanted suggestions on conservation methods and recommended that committees be set up among buyers and users to investigate all possibilities.

Walter Shorter, chief of the container section, OPM, declared that export demands for shipping containers for the lease-lend program will be "tremendous."

M. Howard Morley, managing director, Thames Board Mills, Ltd., Purfleet, Essex, England, outlined the difficulties which the British paper and container industry faced as a result of the war.

E. R. Gay, vice president of the St. Regis Paper Company, pointed out how the weight of heavy-duty bags has been reduced 14 to 19 per cent in recent years and said that further savings are possible to the point where breakage or spoilage becomes excessive. He favored greater use of heavy paper bags and said that they have become a definite article of commerce among second-hand bag dealers, with the torn and damaged ones being repulped.

Michigan Superintendents Meet at Kalamazoo

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., September 29, 1941—The first fall meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association was held at the Park American Hotel Thursday evening, September 25, with forty superintendents and guests present.

Reviews Year's Activities

Following the dinner Chairman Andrew Weller commented on the past year's activities and thanked the members of the various committees who had served and assisted him.

The yearly report read by Secretary-Treasurer Glen Sutton revealed that they had enjoyed a prosperous year and were in a good financial condition.

The New Officers

The nominating committee's chairman, L. H. La Liberte, announced the following slate of candidates for the offices for the ensuing year, Henry Nendorf chairman, Al Perlick first vice-chairman, Glen Sutton second vice-chairman and Joe Waber secretary-treasurer. All were unanimously elected to the respective offices.

The speakers were John Cornell associate editor of the *Paper Mill News* and S. A. Staege of the engineering department of Black & Clawson.

S. A. Staege Speaks

The subject of Mr. Staege was the Selectifier Screen manufactured by his company and his explanation of its operation and uses proved very interesting to the members present. A barrage of questions asked him regarding the equipment were very ably handled.

Retiring Chairman Weller announced that elaborate plans were in formation for the October 16 meeting which would be in honor of Barney Benson of the Williams Gray Company and L. H. Breyfogla of the Draper Felts Company both of whom have spent fifty years in the industry.

Those Who Attended

Those attending were: W. H. Astee, Michigan Paper Co.; R. C. Alden, Watervliet Paper Co.; Ralph Atkins, Lee Paper Co.; J. R. Bell, Kalamazoo Gazette; Ray L. Barton, Michigan Paper Co.; Willard Barnhart, AMC Box Board Co.; N. J. Berger, Armstrong Machine Works; John Cornell, Paper Mill News; Kenneth Conrad, AMC Box Board Co.; A. W. Cole, Rex Paper Co.; N. J. Cowie, Hawthorne Paper Co.; H. C. Dorr, Hercules Powder Co.; Paul Dumas, Chromium Corp.; H. D. Frost, Sinclair Co.; C. E. Gardner, Lee Paper Co.; W. B. Hadley, Sutherland Paper Co.; D. P. Hatch, Socony Vacuum Co.; George A. Hermann, Hermann Mfg. Co.; M. P. Kestler; L. H. LaLiberte, Kalamazoo Vegetable Parchment Co.; Hoke Martin, Hercules Powder Co.; J. W. McClaren, National Starch Products; Henry Nendorf, Rex Paper Co.; W. J. Plank, J. J. Clark and Co.; C. B. Rader, Sutherland Paper Co.; A. L. Sherwood, Sutherland Paper Co.; F. K. Sharkweiler, Hercules Powder Co.; Robert B. Stewart, Kalamazoo Vegetable Parchment Co.; R. B. Stewart, Jr., Kalamazoo Vegetable Parchment Co.; R. W. Shaw; Homer E. Stafford, Retired; Glen Sutton, Sutherland Paper Co.; S. A. Staege, Black Clawson Co.; Paul Torres; Al. Perlick, Kalamazoo Vegetable Parchment Co.; C. E. Van Buren, Albany Felt Co.; Joe Waber, Rex Paper Co.; Arnold Weller, Sutherland Paper Co.; F. Weirich, Sutherland Paper Co.; William Wessel, AMC Box Board Co.; W. F. Wolfe, Mac Sim Bar Co.; Art Woolam, Woolam Co.; and J. A. Wise, Kalamazoo Paper Co.

New Literature

Catechism of electrical machinery is the title of Bulletin E100C, issued by Fairbanks, Morse & Co., 600 South Michigan avenue, Chicago, Ill. It explains electricity and magnetism as utilized in electric generators and motors, the principles of direct-current generators and motors, and gives useful tables of practical application.

Mechanical flow and liquid level meters are described in Catalog 2204, issued by The Brown Instrument Company, Wayne & Roberts avenues, Philadelphia, Pa. It gives useful information for plant engineers and executives of the Brown meters for indicating, recording and controlling operations. Operation parts and special application of the instruments are included.

The latest Texrope V-belt, is the subject of Bulletin B-6190, issued by the Allis-Chalmers Manufacturing Company, Milwaukee, Wis. It explains how the Super-7 belt provides longer life because of stronger cords, new cushion rubber zone and duplex-sealed cover.

Portable vulcanizer, Type R.O. in the form of a catalog section, has been issued by The B. F. Goodrich Company, Akron, Ohio. It describes the merits of the vulcanizer for repairing the covers of conveyor belting.

Diaphragm type valves are described in a new catalogue issued by the Hills-McCanna Co., 3025 North Western avenue, Chicago, Ill. It explains the major features of the valve, with data, specifications and service recommendations.

Gasoline-powered lift trucks are described in a 26-page catalogue issued by the Towmotor Company, 1292 East 152nd street, Cleveland, Ohio. It gives specifications of 7 models of Towmotor trucks, from 2,000 to 10,000 pounds capacities, with information on handling costs, useful for plant managers and engineers.

Materials handling equipment is the subject of Booklet B-2264, issued by Department 7-N-20, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. It features A.C. and D.C. motors up to 600 H.P., for typical materials handling operations, with an application chart to facilitate the selection of motors in industrial plants.

To Give Dinner for G. H. Ellis

MINNEAPOLIS, Minn., September 29, 1941—A testimonial dinner to George H. Ellis, inventor of structural insulation board, and widely known throughout the industry, will be given by R. H. M. Robinson, president of Minnesota and Ontario Paper Company, Friday, October 17, at the Minneapolis Club.

Mr. Ellis, consultant engineer for Insulite since 1924, has been closely identified with the manufacture of insulation board since he invented it in 1906. So important and numerous have been his contributions in this field that he has become known as the "Father of Insulation." Toastmaster at the banquet will be Joe Sanders, former public relations director for the Insulite division of M. & O.

Known predominantly for his work in insulation, Mr. Ellis also has made contributions in the field of agricultural machinery and processing that have

GEORGE H. ELLIS

resulted in widespread public benefit. In fact, it was in this latter field that he first achieved success. It was here also that he laid the groundwork for the invention of structural insulation board.

Born January 12, 1865, he left home at the age of eleven to become a chore boy in a hotel at Crookston, Minn. His career as an inventor began four years later at Sauk Centre, Minn., when after quitting his hotel post he took a job repairing farm machinery. Quickly mastering his work he invented a straw binder apparatus for making twine out of grass and straw at the age of 15.

He received $1,000 for an option on the invention from the American Fiber Company and took the machine to New York where its efficiency was quickly demonstrated. Following negotiations with the American Fiber Company, Mr. Ellis sold his patent to the Deering farm machinery company in Chicago, receiving $10,000. He also went to work for this firm and remained with them for nearly 20 years.

During this time he made many useful inventions and improvements in farm machinery. Continuing along lines of his original invention Mr. Ellis produced twine out of other materials such as grass. It was from these experiments that the first structural insulation board was made from waste products of flax straw used in making binder twine. Conception of the board actually occurred at the International Harvester Company's plant at Hazel Park, St. Paul, Minn., which was organized and developed by Mr. Ellis.

Further research proved insulating qualities of the product and he tried to interest manufacturers of railroad refrigerator cars in the board. But they were using such materials as cork, sea grass and flax for cold storage and could see no reason to change.

Failing to interest manufacturers, Mr. Ellis organized his own concern, called the Flax-li-num Company, at LeRoy, Minn., in 1909, and during the latter part of that year sold 1,550 cars of insulation to the Sante Fe railroad for refrigeration. To the public at that time the "insulation" meant only the protective covering around electrical wires and it took O. W. Busse of Minneapolis, first salesman for the new company, a year and a half to make his first sale. But soon after contractors and prospective builders began to discuss the new product and study its possibilities.

It was during this time also that many of the tests to show fuel saving and other important characteristics of insulation board that now are public knowledge were worked out by Mr. Ellis. It was at the LeRoy plant that the possibilities of using wood pulp screenings for insulation board were first explored. For years paper manufacturers had been piling this material in their yards hoping that some day a market would be found for it.

This hope proved a reality, for in 1914, as a result of these experiments, Minnesota and Ontario Paper Company at International Falls, Minn., began manufacture of the first wood fiber structural insulation board, using wood pulp screenings.

In 1916, Mr. Ellis sold his interest in the LeRoy plant and decided to retire but soon found retirement harder than working and began a survey of accumulated fiber in Panama for the United States government. Following this and several years of private research he joined Insulite in 1924.

Under his direction a service engineering department was organized, production was stepped up, a new plant was built and the sales department reorganized. A constant, intelligently-directed research program found new uses for insulation board and steadily increased its strength and durability. One of the most important research developments was the use of asphalt as a preservative for sheathing and sheet lath against damage by fungi and moisture.

At the age of 76, Mr. Ellis still is vitally interested in finding new uses for insulation board and enthusiastically continues the research that has brought better homes and better living for millions of persons throughout the world.

Finch, Pruyn Install Motor

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., September 29, 1941—Announcement is made here that Finch, Pruyn & Co. are making preparations for the installation of a 2,500 horsepower electric motor to be used as an auxiliary means for operating one of the five pairs of grinders in the newsprint mill during periods of low water.

Forestry At The Cross Roads*

By A. B. Recknagel[1]

The situation in forestry as it is today developing in the United States emphasizes a problem which must be resolved if the future progress in this profession is to be assured. The early decades of the forestry movement, especially during the administration of Theodore Roosevelt, gave a lively impetus to the acquisition of national forests partly from the public domain and partly by purchase. This program met with universal approval and national forests are now accepted as a vital part of our national life and as a prominent feature of rural economy, particularly in the Western states. Today they aggregate 173 million acres scattered througout the 48 states and Alaska, excepting only New York, Maryland, Kansas and certain of the New England states where there are no large forest areas. Maryland and New York have adopted a policy of developing their own forests.

State forests, whose growth has paralleled that of national forests, and which have become an equally important part of the American scene, today constitute the large area of 9½ million acres.

Then too there has been a rapid development of community forests, a very old form of public ownership which has recently taken hold on the popular imagination in this country. At present there are over a million acres of timberland under community control, affording a first-hand contact with forestry to many citizens who live too far from the national or state tracts to make use of their facilities.

Only Fraction of Entire Forest Land

All in all the past 40 years have proved quite satisfactory for publicly owned forests, but these comprise only a fraction of the entire forest land of the United States. The outstanding forestry problem in this country is still its 341,000,000 acres of privately owned timberland, the achievements on which, despite the efforts of the federal and state forest services and the strong urging of many progressive citizens, lag noticeably as compared with those on state and nationally owned land. Figures recently published by the Forest Service of the U. S. Department of Agriculture show that of the total of privately owned commercial forest lands only one fifth is under management, and of that fifth only about one third is under sustained yield management. Sustained yield, it should be explained, refers to land so managed as to at least maintain production in sufficient quantity for commercial operation. The other two thirds of the private land under management receives a satisfactory degree of fire protection and such cutting practices as are necessary to keep the land productive although not at the level of sustained yield.

What of Other Four-Fifths

What then of the other four-fifths? The statistics show that three-quarters are at least partially productive. That is, the land bears timber either now or potentially valuable, without special effort on the part of the owner other than fire protection. The final quarter—some 58 million acres—is land not in productive condition, or "waste or denuded" land which probably cannot be restored except by forest planting.

A recent publication of the Department of Agriculture commenting on this situation says: "On millions of acres now bearing cordwood or second growth stands the forests must be habilitated—the growing stock built up and the composition improved. And in the last analysis sustained yield is the critical test of good forest management. It alone assures continuity of output, continuity of employment, and stable support for dependent communities and for forest regions. The problem confronting us as a nation is that of completing the change (already begun) from a philosophy and practice of liquidation to that of sustained production under management."

Two Schools of Thought

These statistics, the best ascertainable without a complete national forest survey, point clearly to the problem and have given rise to two definite schools of thought: the one which urges complete federal control of all private timberlands, either directly or through the medium of the state governments; and the other which uses, as the means to improve private forest management, cooperation through federal and state aid to timberland owners. These divergent viewpoints go back several decades. As early as 1920 Emeritus Dean Henry S. Graves of the Yale School of Forestry, during his incumbency as Chief Forester, defined what were called "minimum silvicultural requirements" in a series of U. S. Department of Agriculture bulletins; but these bulletins, despite wide publicity, were seldom put into actual use in the woods.

The clash of opinions could not be reconciled into support of enabling legislation. At that time two policies were before Congress: (1) the Capper Bill for strong federal control and (2) the Snell Bill for control by the states. Both bills failed. But a final compromise known as the Clarke-McNary Act, resulting from a Senate Committee on Reforestation appointed in 1922 and reporting in 1924, made cooperation the cornerstone of the federal policy of dealing with private timberland owners.

First National Conservation

The decade which followed (1924-1933) showed substantial achievements in cooperation, although with the 1929 depression it looked as if the pressure for liquidation of private timberland investments might wipe out all the progress which had been made. The Franklin Roosevelt administration, immediately upon its inauguration in 1933, addressed itself to improving the situation and, through the National Industrial Recovery Act and its instrument, the so-called "Lumber Code," formulated the famous Article X, in effect the first national conservation code applicable to private timberland owners. This was a tremendous forward step not only with respect to privately owned timberlands, but also to public opinion; it

* Spring Issue of *The American Scholar*.

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approached the problem from the point of view of self-regulation and invited all citizens to participate, either as members of the code authorities or as beneficiaries of the policy of industrial recovery. So far as the activities could develop in the brief time that the N.R.A. was in existence the progress was really phenomenal and, when the Supreme Court ended the N.R.A. in 1935 the conservation code was voluntarily continued by several of the former regional code authorities. Particularly was this the case in the West Coast states of Washington and Oregon, and also, to a considerable extent, in the South. Nevertheless, without the strong impetus of the N.R.A., this movement slowed down in most parts of the country and in some parts stopped completely. It was my good fortune to serve on a joint committee of public and private foresters to carry forward the recommendations of the two great national conferences held under Article X, and I can testify to the excellent spirit which existed at that time among timberland owners large and small and to the high degree of cooperation which was achieved by the regional forest practice rules adopted under the Code.

Marking Time

From 1935 on until the present it may justly be said that we have been marking time so far as a national policy applicable to private timberland owners is concerned. True, the aforementioned states of Washington and Oregon and, to some extent, the Southern states, have made excellent progress. But for the country as a whole there has not been a solution of the problem. What then can be done and what should be done?

At the 40th annual meeting of the Society of American Foresters in December 1940, Earle H. Clapp, acting chief of the U. S. Forest Service advocated complete public control to be exercised through the individual states unless they failed to enact satisfactory legislation, in which event the federal government would take over and regulate all private timberlands. The decision as to what is "satisfactory" would be left to the Secretary of Agriculture. This proposal is based on the premise that the situation in forestry is so urgent as to demand drastic action and that only by regulatory control can the necessary results be achieved.

The spokesmen of the other viewpoint answered with the argument that federal control is neither necessary nor desirable. As to its necessity, it was stated that each time a federal survey of existing forest resources is made the ratio of cut to growth of timber is brought more nearly into balance; that in the measurably near future growth of all forests will equal the drain thereon and, in the further future, this will be true of sawtimber as well as of the lesser sizes; and that, therefore, all the efforts towards regulation are rendered nugatory. As to undesirability, the argument is that cooperation has never been fully tried and, unless and until it is, the recourse to regulatory control is not justified.

Encouraging Progress

Any timberland owner or operator, almost without exception, admits a heavy responsibility for the continuity of his operations to the end that all associated values may be maintained. However this same owner or operator will express doubt as to the practicability of forest management without adequate assistance from public sources, both in the form of monetary help and in legislation designed to equalize the heavy burden of carrying forest properties over long periods of time. Leadership in securing remedial legislation has been taken by the industry, particularly on the West Coast, and the progress in Washington and Oregon, is distinctly encouraging.

Meanwhile the Joint Congressional Committee of the Senate and the House will report its findings in 1941 following a series of hearings throughout the country. What will result from their report and indeed what their report will be is still shrouded in uncertainty. That it will result in some concrete recommendations is obvious and the citizen at large may well feel that this committee is voicing his views and representing his interests.

The successful example of Sweden would seem to point the way to a productive timberland achieved within the democratic pattern, although admittedly conditions there are not fully comparable with those in our country. The Swedish foresters are men of great ability and there is a public attitude toward forests in Sweden to which we have not yet attained; complete localizing of forest regulation there and the establishment of responsible local timber boards has resulted in a degree of forestry practice on private timberlands fully comparable with that on the state forests. If the technical ability of American foresters is adequate to meet the situation and if the public viewpoint can be educated to a sense of the importance of forests, then it would seem as if a reasonable solution along the lines of the Swedish example could be attained.

Drastic Measures Not Desirable

Some legislation will undoubtedly be needed but it might better take the form of the defunct Conservation Code under the N.R.A. than of any drastic measures. If the Congress will state general principles and permit the different states to legislate for themselves adequate progress could be made. But every citizen should inform himself and be prepared to assist through the educating of public opinion, whatever policy is adopted. In solving this problem of privately owned timberland all must share the responsibility as all will share the benefits of a correct solution.

A New Haering Booklet on Water

D. W. Haering & Co., Inc., 205 West Wacker drive, Chicago, Ill., water treatment consultants, have just published a forty-eight page booklet of articles on scale, corrosion and water treatment problems reprinted from a selection of the most interesting and popular discussions to appear in the company's well known house organ, H-O-H Lighthouse.

Profusely illustrated, the booklet provides important information including tables, charts and graphs on water problems occurring in cooling systems, hot water systems, boilers, and return systems including special data on corrosion inhibitors, scale preventives, protective coatings, proportioning equipment and refrigerating brine problems.

Provided in a new format in a convenient pocket size, the new H-O-H Lighthouse Reprints catalog is being distributed by D. W. Haering & Co., Inc., without expense or obligation to chemists and engineers addressing requests to the company on letterheads or indicating the nature of their interest in water.

Deaeration of Boiler Feed Explained

Outstanding in the new 36-page deaeration catalog published by the Cochrane Corporation, Philadelphia, Pa., is the comprehensive treatment of tray-type deaerators, atomizing deaerators, deaerating hot water generators, and cold water deaerators in one publication. An interesting feature for those employed in power plant design is a section of flow diagrams including photographs of the actual units described. A supplementary appendix on corrosion control and pH control is included.

Line diagrams in three colors clarify the operating features of the Cochrane deaerator, further explained by cross-sectional photographs. Special pages are devoted to the various designs that are constructed to meet space limitations and operating requirements. A special section explains metering deaerators equipped with V-notch recorders and electrical systems for recording flow at a distance, when the recorder is desired on a centralized panel-board. Details of accessory equipment are included, with illustrations and drawings to show the importance of these accessories in maintaining trouble-free operation of the entire power plant.

New Dam Named for M. J. Scanlon

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., September 29, 1941 — Powell River, pulp and paper town on the northern B. C. coast, has many memorials of pioneers of the development of the Powell River Co. The late Dr. Dwight F. Brooks, Anson S. Brooks and M. J. Scanlon, pioneer directors of the company, will be long remembered in local landmarks named in their honor. The big community hall at Powell River is the Dwight Hall, the leading public school is the Brooks School, and now there is the Scanlon Dam.

The new concrete dam at Lois river was recently named in honor of the late M. J. Scanlon, a founder and original partner in the company, and the name was bestowed with suitable cememony in the presence of Edwards Brooks, Minneapolis, and other directors and officials, by the late Mr. Scanlon's daughter, Mrs. Helen Scanlon Sample, who came out specially from Chicago for the event.

I. P. & P. Dissolution

Stockholders of the $231,000,000 International Paper and Power Company by a 72.8% vote have approved termination of the company and distribution to its shareholders and warrant holders of corresponding shares and warrants of the International Paper and Power Corporation.

A two-thirds vote was needed in the reorganization by which the corporation ultimately will become International Paper Company.

The stockholders at their special meeting also concurred with warrant holders Wednesday, who voted by 73.6% to waive the 30-day notice required by the declaration of trust before the company is terminated.

President R. J. Cullen explained that when all of the technicalities have been complied with the present International Paper & Power Co., a Massachusetts trust, will become a New York corporation. He said the readjustment would achieve two results—simplification of the corporate structure and economy in administrative expenses and taxes.

Cincinnati Rubber Covered Rolls and Cincinnati Transmission Belts are doing a "swell" job . . . that's the word coming from mills producing tremendous tonnages of paper to meet the demands of today.

Important U. S. paper mills are putting a big responsibility on these two Cincinnati products that are standing the hard, steady grind . . . meeting unusual production schedules . . . giving a service that meets the most enthusiastic expectations.

The Cincinnati Rubber Mfg. Co.
Cincinnati, Ohio

Maine-New Hampshire TAPPI Meets

The Maine-New Hampshire Group of the Technical Association of the Pulp and Paper Industry and the Maine Section of the American Chemical Society met jointly at the University of Maine, Orono, Me. on September 26-27, 1941. W. E. Brawn of the Pejepscot Paper Company presided as chairman.

The principal feature of the meeting was the dedication of the new building for Chemistry, Chemical Engineering and Pulp and Paper Technology of the University on Friday. Addresses were made by President Arthur A. Hauck, Edward E. Chase, President of the Board of Trustees and Paul Cloke, Dean of the College of Technology.

Proceedings of Friday

On Friday, preceding the dedication there were two papers presented. One was by Professor W. J. Nolan on "Pulp and Paper Applications of Chemical Engineering Research at the University of Maine" and the other by Professor D. B. Demeritt on "Forest Resources in the Northeast for Pulp and Paper."

In the evening brief talks were given by S. E. Kamerling, Chairman of the Maine American Chemical Society Section and R. G. Macdonald, Secretary-Treasurer of the Technical Association. The principal address was made by C. C. Furnas, Professor of Chemical Engineering at Yale University who talked on "The Storehouse of Civilization."

Proceedings of Saturday

On Saturday morning there were two round table discussions. One was led by R. N. Miller of the Oxford Paper Company on "Bleaching and Chlorine Usage" and the other by T. M. Barry of the Fraser Paper, Ltd., on "Availability of Raw Materials."

The following participated in these discussions: Fred Gibbs, Wallace & Tiernan Company; E. A. Georgi, Hercules Powder Company; H. E. Duston, Monsanto Chemical Company; C. H. Champion, R. T. Vanderbilt Company; Frank O'Rourke, General Dyestuffs Company; Ray Kilty, A. E. Staley Company; Charles Prescott, American Cyanamid and Chemical Company, and W. A. Ketchen, Fraser Companies, Ltd.

Following these discussions Carl A. Briggs and J. L. McCarthy of the Fraser Companies, Ltd., Campbellton, N. B., presented a paper on "Methods of Evaluating Starch as a Papermaking Material—A New Viscosity Procedure."

Officers Elected

At the election the following were elected for the coming year: Chairman—T. M. Barry, Fraser Paper, Ltd., Madawaska, Maine; Vice Chairman—Clifford Patch, Eastern Corporation, Bangor, Maine; Secretary-Treasurer—**J. G. L. Caulfield, University of** Maine; Executive Committee—T. F. Spear, Oxford Paper Company, Rumford, Maine; Everett P. Ingalls, S. D. Warren Company, Cumberland Mills, Maine; B. T. Larrabee, Brown Company, Berlin, N. H., and Albert Williams, Parker-Young Company, Lincoln, N. H.

In the afternoon Rhode Island State College defeated the University of Maine football team 20-13.

Those in Attendance

Those present included: A. B. Andrews, F. Thaxter Barrows, Stephen A. Barry, T. M. Barry, C. T. Bockus, E. J. Bogan, P. S. Bolton, A. O. Bragg, B. F. Brann, Charles Brautlecht, W. E. Brawn, Paul Bray, W. F. Butcher, Mr. and Mrs. C. A. Briggs, J. G. L. Caulfield, C. H. Champion, Maurice Clark, Paul Cloke, J. C. Darrah, A. P. Davis, Paul A. Donagley, John H. Doughty, Jr., Irwin Douglas, H. E. Dustion, Charles E. Dwinal, Jr., H. M. Federhen, Edson J. Ferrell, William N. Field, James J. Forsythe, E. A. Georgi, C. Gombert, A. P. Gregory, Elaine Haslop, L. S. Hatch, Edward Keith Hayes, Mr. and Mrs. W. B. Hill, Major A. S. Hocker, Henry S. Hooper, Charles L. Horton, Isaiah W. Hunt, O. F. Hutchinson, Mr. and Mrs. E. P. Ingalls, L. C. Jenness, Gust Johanson, A. L. Johnson, David H. Jones, S. E. Kamerling, Lloyd G. Keirstead, W. A. Ketchen, Joseph F. Keyes, Edward W. Kieth, R. E. Kilty, W. A. Lawrence, R. M. Leighton, Fred C. Mabee, R. G. Macdonald, F. G. Mangan, F. . Martin, Roland Martin, James A. McLean, James D. McNutt, R. N. Miller, Harold S. Morse, W. J. Nolan, Harry Newell, Raymond J. Newell, J. J. O'Brien, Frank O'Rourke, George F. Parmeter, Clifford Patch, Harold E. Pratt, C. J. Prescott, Jr., Ralph N. Prince, Wendell A. Ray, E. S. Redman, A. E. Regnier, Edwin A. Riley, W. C. Root, A. Frank Ross, E. E. Sawyer, Floyd G. Scammon, Joseph F. Senuta, David M. Shapleigh, Carl R. Smith, Carl E. Spencer, Fred N. Sprague, R. E. Taylor, Roy Tewksbury, W. L. Tilley, W. E. Tomlin, Joseph A. Warren, Lester F. Weeks, Walter Wentworth, A. T. Whipper, F. O. White, Roy P. Whitney, Albert F. Williams, and Ashley B. Wood, Jr.

Waste Paper Situation Confused

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., September 29, 1941—A conservative drive to increase the collection of waste paper is getting under way, which it is believed will relieve the situation somewhat in paper board and cartons. However, some believe the real shortage in this line will result from a lack of sufficient manufacturing capacity rather than a shortage of materials.

On our local broadcasting stations here, citizens are requested to call a certain telephone number at an established headquarters, advising if they have any waste paper, cardboard, newspapers and the like, and arrangements are then made to call at the various addresses given for the purpose of collecting all such waste paper items.

Dealers in waste paper complain that the drive to increase collections of used paper is not getting much help pricewise, and with the new ceilings ordered by the Office of Price Administration, effective Wednesday of this week, dealers expect that the new price schedules will reduce waste paper collections seriously enough to cut production of paper board.

Obituary

Fred W. Armes

TOPSHAM, Me., September 29, 1941—Fred W. Armes, 67, a prominent Topsham resident and a mechanical engineer at the Pejepscot Paper Company for twenty years, died at his home on Elm Street, Saturday morning, September 20, 1941.

Mr. Armes was born in Farmingdale on June 12, 1874, the son of Addison and Sarah (Douglass) Armes. He was graduated from Gardiner High School and attended the University of Maine. Forty years ago he married Miss Carrie Tobey of Gardiner, who survives him.

Having joined the United Baptist Church of Topsham soon after moving here fourteen years ago, both Mr. and Mrs. Armes have shown much interest in the activities of the church. Mr. Armes had served as a senior deacon and a member of the finance board for a number of years. He was the first president of the Topsham Men's club and was a member of the United Lodge of Masons in Brunswick. He had been a member of the Topsham School board for several years.

Survivors besides his widow are two sons, Fred Douglass of Topsham and Harold F. of Bath, and four grandchildren, Phyliss and Douglass Armes, of Topsham; Harold, Jr., and Richard Armes of Bath.

Funeral services were held at Laws' Funeral Home in Brunswick on Monday afternoon. The Rev. Chauncey J. Stuart, pastor of the United Baptist Church of Topsham officiated. Bearers were William N. Field of Topsham and Earl Small of Brunswick, fellow associates of Mr. Armes at the Pejepscot Paper Company, Fred E. Daggett and H. Failing Merriman of Topsham, both deacons of the United Baptist Church. Interment was at the Oak Grove Cemetery in Gardiner.

Alfred Harvey

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 29, 1941—Alfred Harvey, 75, co-founder of the Harvey Paper Products Company, Sturgis, Mich., died September 21 at the Sturgis hospital following a long illness.

With his son, Harold C. Harvey, he established the company in 1923 at Monroe, Wis., and the firm was moved to Sturgis in 1926.

His widow and the son survive him. Funeral services were held Tuesday, September 23, and burial was made at Sturgis.

New Taylor Advertising Manager

Wallace W. Lockwood has been appointed advertising manager of the Taylor Instrument Companies, Rochester, N. Y., to replace Elmer E. Way, who has resigned.

A graduate of Auburn High School and Syracuse University, Mr. Lockwood joined the Taylor Advertising Department in 1932 and was made assistant advertising manager in 1939. Previously connected with the Lapp Insulator Company, Leroy, N. Y., the Z. L. Potter Advertising Agency and the David Tynion Advertising Agency, both of Syracuse, Wally takes his new position with the very best wishes of his many colleagues and friends in the trade.

Transportation and Defense

T. H. Weatherdon, traffic manager of J. R. Booth Ltd., Ottawa, Ont., writes that many of us recall the confusion and difficulties which beset transportation during the last war and today we are pleasantly surprised to have such efficient and uninterrupted service at our command. This is not merely the result of chance, but has been brought about by well directed and concerted action on the part of those charged with that responsibility.

So far so good, but as time goes on the problem is becoming more acute and if the present record is to be maintained the individual shipper and receiver of freight has to become more cognizant of this fact. All transportation agencies are highly appreciative of the cooperation given to date by the shipping public, but feel that even greater efforts must be put forth by both carrier and shipper to keep service satisfactory. Most every business house is ready and willing to cooperate but many of them have few specific ideas of just what they, as individuals, can do. Efficiency in transportation is a vital need for successful prosecution of the war. Essential war materials must have priority but, with all working together, there should be no fear of not having satisfactory service for all commodities.

Prime Minister Churchill's now famous entreaty—"Give us the tools and we will finish the job" might well be applicable to the transportation problem if we but consider efficiency in freight movements as the job to be done, and the following suggestions as some of the tools with which we can work: 1. Load and unload all freight promptly. 2. Remove all dunnage and waste from cars or trucks. 3. Return all unloaded equipment to carrier promptly or advise them that unloading has been completed. 4. Never use cars for storage purposes. 5. Order maximum loads whenever possible—stretch a point to do so. 6. Place orders as far in advance as practical and avoid the necessity of requiring "overnight" deliveries. 7. Endeavor to follow standard practice in make-up of orders and in shipping instructions. 8. If goods are packed on skids, adopt recognized standards and allow maximum quantity on each skid. This conserves space. 9. Whenever possible, leave loading instructions to mills' judgment. 10. Assist carriers by receiving goods promptly upon arrival and if operating on a five day week, have unloading facilities available also on the sixth day. This is highly important because it improves delivery time by 20%.

Here are a few pertinent facts concerning the pulp and paper industry of Canada and the United States: The industry uses not less than 3 million cars per year. One additional ton in each loaded car is equivalent to adding 40,000 cars to the supply. A saving of one day in the turn around time of all cars has the effect of making 100,000 more cars available for loading. A 10% improvement in the utility and release of all cars used in the paper industry would increase the yearly supply by 300,000 cars.

From the above it can readily be seen what consistent endeavor in the paper industry alone could accomplish. A real contribution to the war effort can be made, but to make it we must have the sincerest cooperation and a degree of patience both on the part of the Paper Industry and those it serves.

These figures deal only with rail transport, but trucks, steamships and air lines, are all part of our transportation problem, and call for cooperative effort to meet the all out demands of a nation at war.

Wood Pulp in National Defense

The illustration presented herewith represents the exhibit of Rayonier Inc., at the Eastern States Exposition held in Springfield, Mass., during the week of September 14-20. Since many items in which wood pulp is used for National Defense purposes are of a confidential nature, or have not been officially adopted by the Government as regulation equipment, only a limited variety of finished products could be shown.

The fabric drape for the backdrop and the Navy and Army pilot flying uniforms are made of Tenasco rayon yarns, woven by Wm. Skinner & Sons into Tackle Twill. The U. S. Government adopted Tackle

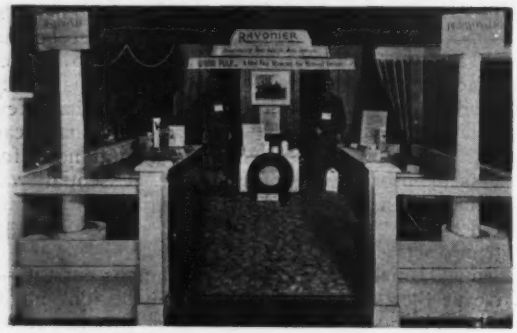

EXHIBIT OF RAYONIER AT SPRINGFIELD

Twill for uniforms for the first 500 parachute troops and large quantities of its are now being woven for Uncle Sam by Wm. Skinner & Sons at their Holyoke, Mass. mills.

To show the relationship of wood pulp to the airplane tire for Brewster Fighter, supplied by courtesy of the Firestone Tire and Rubber Company, a small exhibit was arranged in the background of wood chips, wood pulp, rayon yarn, Rayflex cord and Rayflex, with the display card reading: "The cord in this tire is made of Rayflex a high tenacity Crown Rayon Yarn, product of American Viscose Corporation."

Other items for the exhibit were supplied by the Strathmore Paper Company, the Parsons Paper Company, Knowlton Brothers, A.P.W. Paper Company, Taylor Fibre Company and Bakelite.

Cutting and Embossing Bristols

A demonstration booklet on "How to Score, Die Cut and Emboss Bristols", has been issued by Linton Brothers & Co., Fitchburg, Mass.

The illustrated text gives much practical information for printers and purchasers of printing. Such topics as how to secure a clean fold with proper scoring, how a score works and directions for using the string-and-rule scoring method are given. Other subjects discussed are Collins rule scoring, scoring medium and heavy-weight bristols, booklet and catalogue covers, cross grain scoring and the practice of die cutting and scoring together.

Samples of embossing on all the printing bristol grades manufactured by Linton, except the very strong Rollstone Folding grade, are included in this informative booklet.

CANADIAN PRODUCERS REPORTED DOING WELL

(Continued from page 11)

and the New York *Daily News*. The output from the Thorold plant goes to the Chicago *Tribune*. At Thorold the company's plant has a capacity of 158,000 tons annually. The Baie Comeau mill can turn out 120,000 tons annually. In 1940 the two newspaper owners of Ontario Paper Company purchased from other newsprint manufacturers 98,950 tons in addition to what they obtained from their own mills.

Earnings of Provincial Paper, Ltd., has been well above the average for the paper industry of Canada. This is due chiefly to its dependence on manufacture of high grade book and writing papers, demand for which does not show the fluctuation experienced by newsprint producers. The company's common stock is all owned by Abitibi Power & Paper Co. The company has four plants, located at Georgetown, Thorold, Mille Roches and Port Arthur, Ont. Operations in 1940 continued the upward trend which has been in evidence since 1933. Provincial Paper has been able to pay preferred dividends regularly since the stock was issued in 1927, although no payments have been made on its common since 1937.

The Spruce Falls Power and Paper Company is one of Canada's leading producers of newsprint paper. It is owned jointly by Kimberly-Clark Corp. and the New York *Times*. The company's plant at Kapuskasing, Ont., has an output of 550 tons of newsprint, 440 tons of groundwood pulp, 230 tons of sulphite pulp daily. It has a contract with the New York *Times* to supply its standard newsprint requirements, which, based on latest figures, is about 50% of the plant's capacity. Kimberly-Clark takes the surplus sulphite and handles sales of other products not used by the *Times*.

Chlorine Substitute Sought

Declaring that the American Paper and Pulp Association was striving to achieve "maximum substitution and elimination wherever necessary" in the use of chlorine, E. W. Tinker, executive secretary of the association, said that the "time may come when we will have no chlorine available at all."

Mr. Tinker spoke at a meeting held to discuss "Materials for Production" in the printing industry, by the New York Employing Printers Association, Inc., at the Hotel Commodore, New York, on September 29.

The critical situation in the paper industry, Mr. Tinker explained, "does not lie in paper at all but in the fibrous materials from which we make paper." Asserting that the immediate future is unpredictable, he said that the production ratio of the paper industry in the last six months had been increased from 96% to 104% of the theoretical capacity. Old machines had been repaired and put into production. It was hoped that within the next ten days, a blanket priority rating could be secured on materials essential for the repair of paper-making machines.

Century Paper Co. Leases Space

BOSTON, Mass., September 29, 1941—The Trustees of the Estate of John Dickey, Jr., have leased to the Century Paper Company the southerly half of the first floor and the southerly half of the third floor at 275 Congress street.

Record Attendance for Green Bay

Advance reservations indicate a record breaking attendance for the fall meeting at Green Bay, October 10 and 11. All of those planning to attend this gathering should send their reservations at once to either the Northland or Beaumont Hotels, Green Bay, Wis.

A traditional college homecoming theme will prevail at all functions of this two day meeting. Both hotels will be decked out in college pennants and homecoming decorations. The committee has arranged for a supply of natty sweaters, freshman caps and tortoise rim glasses for the men which will be worn for the homecoming dinner dance, Saturday night, October 11. Bandanna kerchiefs and tortoise rim glasses will be available for the women for this affair. Dress will be distinctly informal and sports wear the order of the day for both men and women for the homecoming gathering on Saturday.

Because of the present situation on chlorine created by the defense program the entire business session will deal on this problem that pulp and paper mills are so vitally interested in. The highlight of the fall meeting will be an informal round table discussion of pulp and paper mill problems. The committee asks the persons representing all mills to submit their problems in advance by mailing them to Walter Johnson, Hoberg Paper Mills, Green Bay, or they can be given to any committee member prior to the meeting.

FALL MEETING COMMITTEE IS READY FOR HOMECOMING TIME AT GREEN BAY

Left to Right—Front Row: A. K. McNaughton, Registrations; H. W. Sherman, General Chairman; N. L. Malcove, Finance; W. J. Clancy, Entertainment; H. L. Nichols, Golf. Middle Row: John Maloney, Arrangements; Gus Klaus, Mill Visits. Back Row: W. J. Johnson, Program; Mrs. H. W. Sherman, Ladies Program; Don Fairbairn, Publicity.

The following is the men's program:

FRIDAY, OCTOBER 10

9:00 A. M. Registration at Convention Headquarters, Northland Hotel.

12:00 NOON Men's Luncheon, Northland Hotel.

2:00 P. M. Opening Session, Northland Hotel, Crystal Ballroom. "The Influence of Dyes in Coloring Duller Pulps Resulting from the Necessary Reduction of Chlorine in Pulp Bleaching." By E. I. Laughlin, of the E. I. du Pont de Nemours Company, Technical Laboratory, Wilmington, Del., assisted by a member from the Institute of Paper Chemistry at Appleton, Wis., and by Martin Downs and Edward Luedke, of the Thilmany Pulp and Paper Company, who will handle the practical part of the discussion. Round Table Discussion and Question Box.

7:00 P. M. Stag Dinner, Beaumont Hotel. Special Entertainment.

SATURDAY, OCTOBER 11

9:30 A.M. Business Meeting, Northland Hotel, Crystal Ballroom. "External Direct Steam Heating for Digester Circulation." By Lloyd Lang, Kimberly-Clark Corporation, Neenah, Wis.

Round Table Discussion and Question Box Confined to Pulp Mill Problems.

12:00 M. Luncheon, Oneida Country Club.

1:00 P. M. Visit to Hoberg and Northern Paper Mills.

The ladies' program is as follows:

FRIDAY, OCTOBER 10

9:00 A. M. Registration at Northland Hotel.

1:00 P. M. Bridge Luncheon, North Lobby Y.M.C.A.

6:30 P. M. Dinner, Northland Hotel.

8:00 P.M. Theatre Party, with choice of either Bay or Orpheum Theatres.

SATURDAY, OCTOBER 11

10:00 A. M. Start from Northland Hotel for trip through scenic Door County.

12:00 NOON Luncheon at Glidden Lodge on the shores of Lake Michigan.

1:30 P. M. Trip around Door County and Peninsula State Park.

7:30 P. M. Homecoming Dinner Dance, Beaumont Hotel.

Dress for the Homecoming Dinner Dance will be informal. This party will be in the form of a college homecoming, with sports attire worn by both men and women. Horn-rimmed glasses and 'kerchiefs will be available to complete the college atmosphere.

Export Control Placed Under Defense

Under an Executive Order by the President the Office of Export Control has been placed under the Economic Defense Board headed by Vice President Wallace, and this agency also is designated to obtain, develop, and estimate overall requirements of materials and commodities for export purposes exclusive of lend-lease requirements. It is designated also to advise the SPAB of such export need estimates.

The EDB will provide a central clearing service to which exporters, manufacturers, and foreign importers may submit proposals for export of materials and commodities and in addition, will obtain clearance for such proposals from the several Federal agencies concerned with control of exports and related financial transactions.

Such additional functions of the EDB, Wallace stated, will be administered by Milo Perkins, executive director of the board. Upon completion of his assignment to launch the export control program Brig. Gen. R. L. Maxwell has been ordered to return to his former duties in the War Department.

Fix Paperboard Price Ceiling

WASHINGTON, October 1, 1941—Leon Henderson, Price Administrator, today imposed a schedule of ceiling prices on all grades of paperboard sold east of the Rocky Mountains. The prices, Mr. Henderson stated correspond to those which have prevailed for several months under voluntary agreements with its principal producers.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending October 1, 1941

	High	Low	Last
A. P. W.	1⅜	1⅜	1⅜
Armstrong Cork Co.	29⅜	28⅝	29
Celotex Corp.	9	8⅜	9
Celotex Corp., pf.	74½	72½	74
Certain-Teed Products Corp.	3⅜	3⅛	3¼
Certain-Teed Products Corp., pf.	32	30½	32
Champion Paper & Fibre Co.	22⅛	21¾	22⅛
Champion Paper & Fibre Co., pf.	106½	106	106
Congoleum-Nairn Co.	18⅛	17⅝	17⅝
Container Corp. of America	15⅛	14⅜	15⅛
Continental Diamond Fibre Co.	9½	8⅞	9½
Crown-Zellerbach Co.	13⅞	13⅛	13⅜
Crown-Zellerbach Co., pf.	91	90½	90½
Flintkote Co.	13¾	13⅛	13⅜
Robert Gair	2½	2⅛	2⅜
Robert Gair, pf.	10¾	10⅜	10¾
International Paper & Power	19¼	17⅜	18¾
International Paper & Power, pf.	71⅛	68⅜	70½
Johns-Manville Corp.	69¾	68½	69
Johns-Manville Corp., pf.	....	....	....
Kimberly Clark Corp.	30½	30	30½
MacAndrews & Forbes	....	....	....
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	27	25⅜	26
Mead Corp.	8⅛	8	8⅛
Mead Corp., pf.	78	78	78
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	103½	102	102
Rayonier, Inc.	14¾	13⅜	14½
Rayonier, Inc., pf.	28⅛	27½	28⅛
Ruberoid Co.	19⅜	19	19
Scott Paper Co.	39½	38½	39
Scott Paper Co., pf.	....	....	....
Sutherland Paper Co.	19⅜	19⅜	19⅜
Union Bag & Paper Corp.	11	10¼	11
United Paperboard Co.	4⅜	4⅛	4⅛
U. S. Gypsum Co.	58½	57	58½
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	19¼	18¾	19¼

New York Curb Exchange

High, Low and Last for Week Ending October 1, 1941

	High	Low	Last
American Box Board Co.	5	5	5
Brown Co., pf.	25	22¼	23¼
Great Northern Paper	39	38½	38½
Hummel-Ross Fibre Corp.	5¾	5½	5¾
National Container Corp.	10½	10⅛	10½
St. Regis Paper Co.	2⅛	1⅞	2
St. Regis Paper Co., pf.	108½	105	108
Taggart Corp.	3	2⅞	2⅞

Masonite Net Profits Up

The Masonite Corporation earned net profits of $2,010,886.11, equal to $3.54 on each share of common stock, in the fiscal year ended August 31, according to preliminary figures announced September 27 by Ben Alexander, president.

These results, which Mr. Alexander said were achieved despite sharply rising taxes, represent an increase of 21% over profits of $1,659,348.08, or $2.91 a share, in the previous year. Although the 1941 figures are still subject to final audit, he said they were calculated after depreciation, income taxes, and other deductions, including provision for preferred dividends. Provision for income taxes, exclusive of foreign income taxes, amounted to $1,420,244.26 in the fiscal year 1941 as compared with $456,144.50 in the 1940 fiscal year. This provision for 1941 includes $470,000 for excess profits taxes.

Sales for the fiscal year just closed totalled $13,109,030.42. This is an increase of 43% over total sales of $9,163,345.35 in 1940.

Mr. Alexander said the improved earnings record was attained by expanding and streamlining production facilities to meet a steadily rising demand for pressed wood fibre board. The company's plant at Laurel, Miss., which employs more than 2,000 persons, has been operating 24 hours a day and seven days a week for the past year. Completion of the current plant expansion program, announced last June and now well advanced, will involve total expenditures of $1,500,000. The largest single project under this program was construction of an $800,000 steam turbine plant capable of generating 13,500 kilowatts of electric power. It already is in operation.

The company's increased volume reflects, Mr. Alexander said, peak demands for pressed wood fibre board from industrial processors, the building industry, and the defense program. He added that the number of manufacturers of civilian goods, who are finding hardboard a satisfactory substitute for metals now demanded by the defense program, is growing rapidly.

Earnings for the fourth quarter of the fiscal year amounted to $830,800.66 an increase of 32 per cent over the corresponding period a year earlier. This is equivalent to $1.49 a share as compared with $629,850.74, or $1.13 a share, reported for the same quarter in 1940.

Mr. Alexander said the corporation's annual report to stockholders will be put in the mails about October 9, and the annual meeting will be held October 24.

To Approve Brown Reorganization

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 29, 1941—The Brown Company reorganization managers have asked the federal court at Portland, Me., to pass upon the documents and other matters involved in consummation of the plan of reorganization, it is announced today by their chairman, Serge Semenenko. The court has set October 10 as the hearing date.

The managers' petition, filed yesterday with United States District Judge John A. Peters, was accompanied by forms of proposed documents, including preferred stock provisions, mortgage indentures and the voting trust. In connection with consummation, certain changes in the plan are proposed.

The petition asks that the reorganization become effective Nov. 29, the end of the fiscal year. The new capital structure will include a $6,500,000 RFC loan, and the petition recites that RFC has approved the managers' action in fixing forms of documents and terms of exchange and distribution of securities and designating transfer agents and registrars in Boston, Montreal and New York. Notices will be mailed tomorrow from the company's office at Berlin, N. H., to approximately 10,000 security holders. Those who do not appear on the company's lists may obtain copies on request.

Champion Nets $690,425

The Champion Paper and Fibre Company and subsidiaries for the sixteen weeks to August 17, reports net profit after Federal income and excess profits taxes of $842,900 was $690,425, equal, after preferred dividend requirements, to 95 cents each on 550,700 shares of common stock, against $819,929, or $1.20 a common share, for sixteen weeks to August 18, 1940.

CONSTRUCTION NEWS

Hamilton Ohio—The Beckett Paper Company, Fourth and Dayton streets, manufacturer of writing and other paper stocks, has awarded general contract to F. K. Vaughn Building Company, First National Bank Building, for alterations and improvements in one-story mill building at Fifth and Buckeye Streets. Work is being placed under way. No estimate of cost announced. Mueller & Hare, Hamilton Hotel, Hamilton, are architects.

Kaukauna, Wis.—The Thilmany Pulp and Paper Company, manufacturer of glassine, greaseproof and other processed paper stocks, has made award to the Worden-Allen Company, Capitol drive and North Third street, Milwaukee, Wis., for steel reinforcing bars for new concrete addition to mill, previously referred to in these columns, and will proceed with superstructure at once. The Permanent Construction Company, 2712 North Milton street, Milwaukee, will carry out the erection. New structure will be located at the lower mill, and will be one and two-story, about 70 x 300 feet, reported to cost over $100,000, with equipment.

New York, N. Y.—The Charles Bruning Company, 102 Reade street, manufacturer of sensitized papers for blue-printing and other service, and kindred processed paper stocks, has purchased a four-story and basement building at 112-16 East Twenty-third street, extending through to 121-25 East 22nd street, totaling about 75,000 square feet of floor space, and will use for new production plant, sales and general offices, storage and distribution. Present paper-manufacturing facilities will be increased at new location. Structure will be improved and occupied at early date, with removal from first noted location.

Louisville, Ky.—New heavy paper container-manufacturing plant of Reynolds Metals Company at Louisville, previously noted in these columns, will be operated by Reynolds Research Corporation, an affiliated interest. Company has work in progress on remodeling and improving former local plant of American Oak Leather Company, South Twelfth street, secured under lease, for new factory, with installation of equipment for large capacity. Available one-story buildings total about 125,000 square feet of floor space, all of which will be used for production of special paper containers suitable for packing and shipping of smokeless powder. Output will be used by Government at new ordnance works at Charlestown, Ind. About $250,000 will be expended by Reynolds Company for new plant facilities, which are scheduled to be ready for service in near future.

Tacoma, Wash.—Rayonier, Inc., Tacoma Division, has awarded contract to Rust Engineering Company, 950 Pacific street, Tacoma, and Clark Building, Pittsburgh, Pa., for improvements in power house at sulphite mill on Taylor street, including erection of a new stack to cost about $9,150. Work is being placed under way.

Baton Rouge, La.—Fire recently damaged the building of the Capital Paper Stock Company, commercial paper products, used for storage and distributing service. No estimate of loss has been announced. It is planned to rebuild.

Maple Shade, N. J.—E. W. Twitchell, Inc., Third and Somerset streets, Philadelphia, Pa., manufacturer of twisted, molded and other processed papers, has approved plans for new plant at Maple Shade (Burlington County), consisting of a two-story building, about 60 x 120 feet, to be equipped for large capacity. General erection contract has been awarded to Industrial Constructors Company, Broad street and Allegheny avenue, Philadelphia, and work is scheduled to be placed under way at once. Cost reported over $50,000, with equipment. L. H. Goettleman, 404 Chestnut street, Brooklawn, Pa., is architect.

Tacoma, Wash.—The Standard Carton Company, 2611 Pacific avenue, manufacturer of folding paper boxes and containers for food products and other service, plans early rebuilding of portion of plant, recently destroyed by fire. An official estimate of loss has not been announced, but reported in excess of $75,000, including equipment, stock, etc.

Detroit, Mich.—The Detroit Sulphite Pulp and Paper Company, 9125 West Jefferson avenue, manufacturer of coated and other paper stocks, is beginning erection of proposed new addition to mill, recently referred to in these columns, to be one-story, designed for expansion in production division. Construction will be carried out by W. J. C. Kauffmann Company, 10610 Shoemaker avenue, Detroit, general contractor. Cost reported about $50,000, including equipment.

Toronto, Ont.—Canadian Wirebound Boxes, Ltd., 1000 Gerrard street East, manufacturer of corrugated paper boxes and containers, etc., has awarded general contract to James Bodie Construction Company, Ltd., 456 Pape avenue, for proposed one-story addition to plant, previously mentioned in these columns, and erection will be placed under way at early date. Cost is reported close to $70,000, including equipment. R. W. Sherriff, 3 Macauley street, is architect.

Monroe, La.—The Louisiana Paper Company, Ltd., 139-59 Europe Street, Baton Rouge, La., writing and other fine paper stocks, wrapping papers, etc., has leased property at Ninth and Washington streets, Monroe, and will use as site for new one-story building for branch establishment now operated at that place. Complete storage and distributing facilities will be provided. Cost reported over $25,000, with equipment. Work is scheduled to begin at early date.

New Companies

New York, N. Y.—The Petite Box Corporation has been organized to deal in paper boxes, cartons, etc. New company is represented by Isidore Englar, 291 Broadway, New York, attorney.

Detroit, Mich.—Industrial Bag & Specialties, Inc., has been chartered with capital of $50,000, to manufacture paper bags and other containers. Louis Biderman, 3820 Leslie avenue, Detroit, is principal incorporator and representative.

New York, N. Y.—Comet Shipping Supplies, Inc., has been incorporated with capital of $10,000, to deal in wrapping papers and other stocks, shipping corrugated boxes, etc. New company is represented by Robbins Stationer, 25 Warren street, New York, incorporating agent.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger

EDITOR

Vol. 113 October 2, 1941 No. 14

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

PAPER SUPPLY SITUATION

A great deal of general talk about the shortage in paper has and continues to create a false conception of the actual state of supply. There is no current shortage of paper so far as the consumer is concerned. The assertion by government spokesmen and reiteration in some quarters of the paper market that a paper shortage exists, is apparently based on the balance between potential production and consumption; the margin between government requirements plus heavy trade demand absorbs capacity production, and an anticipated shortage is reported. In other words, paper is shipped from the mills about as rapidly as it is manufactured. A substantial proportion is for government account and the high level of general business activity most undoubtedly require a substantially higher tonnage than has ever been required before.

Another cause of confusion arises through indefinite reference to paper, with no reference to the grade of paper. There are many major grades of paper and a statement that a paper shortage exists or will occur next week, next month or next year means one of two things; that the speaker does not know what he is talking about or neglects to mention in what grade of paper or paper board the scarcity is or may exist. Much supposedly government comment on the paper situation and on the state of supply and demand in other commodities and products in the non-durable or consumer goods group, it not authoritative. But such assertions are misleading and it seems reasonable to many citizens in these uncertain times, that the government should do more to inform the public of the factual situation. A bureau of information that would disseminate such news to a confused public should greatly help to allay doubt and fear and bring about a more general feeling of confidence and security and thus create that unity for which the President has asked of all his countrymen.

It is because of lack of proper understanding that consumers fear increasing prices, and shortage of paper, and increasing difficulty in obtaining deliveries encourage buying for the future in quantities well in excess of actual needs. To a reasonable extent, this forward purchasing to provide against possible contingencies, is a good business policy. The practice of placing orders substantially in excess of actual requirement, which is commonly considered buying for speculative account, exerts strong pressure and tends to raise prices too rapidly and very often too high.

An inquiry from authoritative sources as to the actual current supply situation in paper, will indicate no actual shortage, but disclose a potential lack of supply is predicted by some government officials in 1942. It is possible, of course, that the government will greatly increase its purchases for next year, but none outside government purchasing agencies are apparently definitely informed as to the tonnage required for defense, lend-lease, and regular government departments for 1942. From recent reports on government buying of container board, largely in the solid fiber grade, and of liner board, there is an indicated shortage in these items for civilian use next year.

Production of all kinds of paper at this date is in excess of 16,000,000 tons for the current year. Mill shipments of writing paper are now about 25% higher than last year and insurance companies, who are very large consumers of paper, are now reported to carry inventories of six to eight months, while formerly carrying supplies for two months. The government is taking, according to competent authority, 11% of the total production of writing paper this year. Even if expenditures of the government should be doubled, it is difficult to see how it can use more than 15% next year, despite reports indicating that the government will require 31% of the output.

And serious inquiry into the paper supply situation must show that paper manufacturers have responded remarkably well to the steadily rising demand for paper. The new cut in the use of chlorine for bleaching pulp to 50%, which is expected to go into effect on October 13 will, of course, reduce the brightness of writing and other equally white grades, to a substantial and noticeable degree. There will, on this account, be a shortage of fully bleached pulp and a lower brightness standard in the paper manufactured from it. But this does not indicate a general shortage of paper, and while the consumer must accept a lower brightness standard, there is no reason to believe consumers cannot obtain all the paper they actually need.

One aspect of the paper supply situation which has created some confusion in the minds of those not fully informed, is the comment of some distributors of paper that a shortage of paper exists. The diffi-

culty here, is that many distributors cannot obtain all the paper they would like to sell. In an active market like the present, it is natural enough that distributors are anxious to expand their sales in a period when orders are to be had for the asking. It is undoubtedly true that mills have been forced to decline to accept new orders, but continue to supply all customers in quantities adequate for their actual needs.

Perhaps the most convincing answer to the paper shortage assertion are the ample stocks of paper of all grades obtainable at wholesale and retail. So long as the consumer is able to buy all the paper required, it is difficult to discover any actual shortage in the supply of any grade of paper. What the future may bring forth is uncertain, but the productive capacity of the industry is so large that if it is able to obtain the raw materials, a serious scarcity of paper is not likely to occur, even next year when government buying of almost everything is supposed to reach unparalleled heights.

Canadian Overseas Newsprint Shipments

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 22, 1941—While in 1940 shipments of newsprint to overseas markets at 657,588 tons were higher than in the pre-war year 1938, when they were 475,779 tons, the overseas movement this year has shown a decline, the total for the first eight months being 324,302 tons as compared with 458,784 for the comparable period of 1940.

In this connection a report from A. B. Muddiman, Canadian Trade Commissioner in Mexico, is interesting. He points out that Mexico is one of the most important purchasers of Canadian products in Latin America, and that in 1940 Canada had a favorable trade balance with Mexico of $3,594,000. By far the largest import by Mexico from Canada was white newsprint, this one import amounting to 26,030,506 Kilos, valued at 6,975,431 pesos, as compared with 6,886,880 Kilos, valued at 1,462,548 pesos in 1940.

Government Saves on Stencil Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 1, 1941—Secretary Morgenthau has announced the award of a contract for the Government's stencil paper needs for the six-month period beginning December 1, 1941, that will effect an estimated annual saving of $300,000.

The contract, awarded by the Treasury's Procurement Division to the A. B. Dick Company of Chicago, called for purchase of the mimeograph stencils in a price range of $0.81 to $2.64 per quire. Previous prices per quire had ranged from $1.07 to $5.05.

The savings was accomplished, according to Director of Procurement Clifton E. Mack, as a result of a protracted performance survey which made possible revision of specifications to eliminate segregation of cellulose and non-cellulose stencils and thus increased competition. Director Mack said that similar surveys are now being made of other commodities purchased in large quantities.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
August 16	100.5	August 17	84.6
August 23	102.8	August 24	84.7
August 30	101.9	August 3	83.4
Sept. 6 (Holiday Week)	86.1	Sept. 7	69.3
Sept. 13	104.0	Sept. 14	85.2
Sept. 20 (Prelim.)	*103.8*	Sept. 21	85.0

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	89.1	84.7	82.3	84.3	90.0	92.1	85.3
1941	85.6	89.7	92.2	96.4	98.9	99.5	94.8

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	85.1	81.5	85.5	84.9	80.9	85.6
1941	*101.8*	...	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date...	68.7	78.2	86.1	69.4	79.5	86.2	*94.8*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	81	82	83	84	88	86	*94*	..	..	..	..	

Week ending Aug. 16, 1941—92
Week ending Aug. 23, 1941—94
Week ending Aug. 30, 1941—97
Week ending Sept. 6, 1941—80
Week ending Sept. 13, 1941—98
Week ending Sept. 20, 1941—99

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Low Water Handicaps Maine Mills

BANGOR, Me., September 29, 1941—A power shortage resulting from a tremendous drop in the waters of rivers and lakes in Bangor and vicinity September 25 forced the temporary shut-down of two of the Eastern Corporation's pulp mills, one at South Brewer and the other at Orono. The closing order affected some 150 workers, the majority of them repairmen, company officials said. Other departments of the company continued their normal schedule.

Officials of the large pulp and paper concern stated the mills would be opened as soon as possible and that a large amount of rain was necessary to replenish the now depleted waters of the Penobscot river and other bodies of water and prevent a serious power shortage.

The Bangor Hydro Electric Company, which maintains numerous power stations along the Penobscot and Union rivers, as well as at several nearby lakes and ponds, issued the following statement:

"Graham Lake in Ellsworth (site of power station) has a supply of one billion cubic feet of water which is sufficient for eight weeks. Certain curtailments have been made to secondary power customers. No general curtailments are anticipated."

N. A. McKenna To Serve As Chief

WASHINGTON, D. C., October 1, 1941—Norbert A. McKenna, who became chief of the Pulp and Paper branch of OPM when it was under the Production Division, will continue to serve as head of that branch under a reorganization, whose functions were transferred to the new Division of Civilian Supply of OPM.

FOR NEW REELS OR REPAIRS TO OLD ONES . . . BLACK-CLAWSON IS YOUR SOURCE

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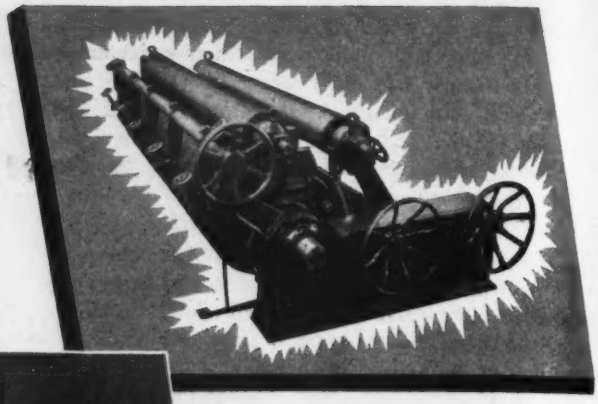
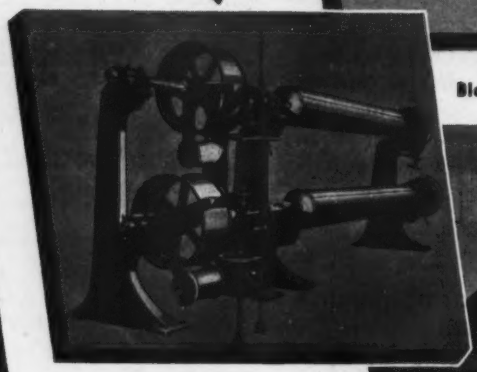


Black-Clawson Uniform Speed Reel.



▲ Black-Clawson Two Spool Upright Reel.

➔ Black-Clawson Single Drum Horizontal Reel.

● ***Uniform Speed Reels***
For light weight papers and high speeds. Proven features of simple design result in ease of operation. Uses famous Black-Clawson seamless dryers, equipped with steel journals. Inherently balanced. Low frames insure rigidity and stability. Rolls up to 62" diameter.

● ***Two Spool Upright Reels***
For board machines and heavy weight papers. Box type construction of frames insures rigidity and neat appearance. Location of friction handwheels and alignment adjustments are positioned for convenience of operators. Will handle rolls up to 62" diameter.

● ***Single Drum Horizontal Reels***
For extra large jumbo rolls, .009 chip for corrugating or whatever large rolls are to be made at high speed. Permits closer control of reel and insures safety for the operator. Rolls to 84" dia.

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BLACK CLAWSON

REELS REELS

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Species Identification of Nonwoody Vegetable Fibers*

TAPPI Suggested Method T 10 sm-41

The various nonwoody fibrous materials which are commonly encountered in pulp or paper samples may be identified on the basis of their structure as revealed under the microscope. Details are given for the identification of an unknown specimen.

Apparatus

The only special apparatus required for the purpose of fiber identification is a compound microscope equipped with an eyepiece micrometer which has been accurately calibrated.

Reagents

The necessary reagents include: (1) 1 per cent sodium hydroxide (NaOH) solution, (2) 10 per cent NaOH solution, and (3) 1 per cent methylene blue solution. The solutions need be only of approximately the strengths indicated.

Test Specimens

A fibrous suspension may readily be prepared by boiling a small sample of pulp or paper for a few minutes in 1 per cent NaOH solution. After washing out the alkali, shake the fibrous mass in water to separate the individual fibers. Place 1 or 2 drops of the fibrous suspension on the microscope slide, cover with a cover glass, and stain with a drop of methylene blue solution for a few minutes.

Reference Standards

When authentic specimens of commercial fibrous materials are available, it is highly desirable that known fibrous suspensions be prepared for purposes of comparison with tentatively identified samples. Such material may be macerated by boiling a small amount of the commercial fiber in 10 per cent NaOH solution for about 30 minutes, followed by washing and vigorous shaking in water.

Procedure

A thorough microscopical examination of the fibrous suspension will include an enumeration of the cell types present and their characteristic markings, and a measurement of cell dimensions. Tentative identification may be made through the use of the key at the end of the method. In using the key, select from the pair numbered 1 the one description which fits the material under consideration. If a number is found at the right-hand end of the line, refer next to the pair of descriptions bearing that number and repeat the procedure. By this method of selection, a description will ultimately refer to a species or group of species which possesses the required characteristics.

Reference should next be made to the description, fiber dimensions, and the photomicrographs of this particular species as a further check upon the identification. A final comparison of the unknown with authentic material as previously mentioned should provide conclusive proof as to the identity of the sample.

Structure of the Plant Stem

Although the pulping process so destroys the original tissue of the plant stem that the individual cells are more or less completely separated and appear as isolated units, a general introduction to the structure of the plant is essential to an understanding of the cell types to be described. The fiber, which is the only cell type contributing in any degree to the strength of the paper, is accompanied by other types of cells which frequently are important aids in identification.

The plants from which the commercial fibers described herein are obtained may be divided into two general classes—the Monocotyledons and the Dicotyledons. The former are typically represented by the grasses, lilies and palms—all plants with parallel-veined leaves; the second group includes plants with net-veined leaves, such as flax and the common broad-leaved trees. The two classes are separable by an examination of the internal structure of the plant body.

The conduction of water and food through the plant is accomplished in both groups by a system of cells arranged in long series known as *sieve tubes* and *vessels.* The thin walls, frequently modified by openings known as *sieve fields* and *pits,* together with the large cavities of these cells, are commonly explained on the basis of their special adaptation for the conduction of liquids. As though to compensate

* Prepared by Frederick F. Wangaard, Assistant Professor of Forestry, University of Washington, Seattle, Wash. Adapted from an article appearing in *The Paper Industry,* Oct., 1937. The author wishes to thank the publishers of the latter for permission to reproduce several of the illustrations.

This method is suggested by the Microscopical Analysis Committee as being the most suitable to date for its purpose. It is *not,* however, a TAPPI Standard. Criticisms of it are earnestly requested and should be sent promptly to R. G. Macdonald, Secretary of TAPPI, 122 East 42nd St., New York, N. Y.

for these weak conducting cells, they are accompanied by another type, the *fiber*, which contributes strength and rigidity to the plant. Fibers are long, slender cells characterized by relatively thick, infrequently pitted walls and a narrow cell cavity or *lumen*.

The arrangement of the conducting tissue in the plant stem is characteristically different in the monocotyledons and the dicotyledons. In the former group the conducting tissue and the accompanying fibers are arranged in vascular bundles which are distributed at random throughout the greater part of the plant stem (Fig. 1). The vascular bundles of the dicotyledons, conversely, are arranged in a definite ring pattern or, as is frequently the case, an unbroken ring of vascular tissue without distinct bundles may serve for purposes of conduction and mechanical support (Fig. 2). The inner portion of this ring of vascular tissue is the *xylem*, composed chiefly of xylem fibers and vessels. Just outside of the xylem is a narrow layer of living cells known as the *cambium*, and beyond this lies the *phloem*, consisting for the most part of sieve tubes and phloem fibers. Surrounding the vascular tissue are successive protective layers known as the *pericycle*, *cortex* and *epidermis*. The fibers used in papermaking may be *vascular bundle fibers* from the stem or leaf of the monocotyledons or, if derived from the dicotyledons, they may be from the phloem, pericycle, cortex or vascular bundle of the stem. The dicotyledonous fibers are commonly designated as *bast fibers*.

The cotton fiber illustrates still another source of commercial fiber. This is the *seedhair*, a cell which originally was attached to the seed of the plant. In contrast to the structural fibers which are separated only by disintegration of the plant tissue which they constitute, the seedhairs are individual units in nature.

The fibers to be described in the ensuing paragraphs may be classified in the following manner:

I. *Structural fibers*

(a) Vascular bundle fibers—Monocotyledons

1. Manila hemp
2. New Zealand flax
3. Sugar cane
4. Corn
5. Bamboo
6. Esparto
7. Rice
8. Rye
9. Barley
10. Oat
11. Wheat

(b) Bast fibers—Dicotyledons

1. Flax
2. Hemp
3. Ramie
4. Jute
5. Mitsumata

II. *Seedhair fibers*

1. Cotton

Cell Types

Bebore proceeding with detailed descriptions of

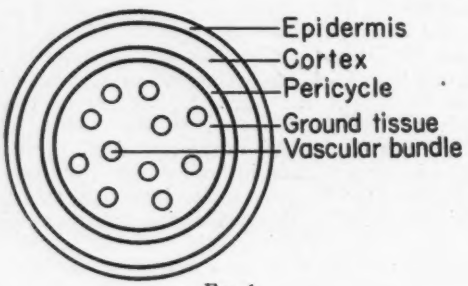


FIG. 1
Monocotyledonous Stem

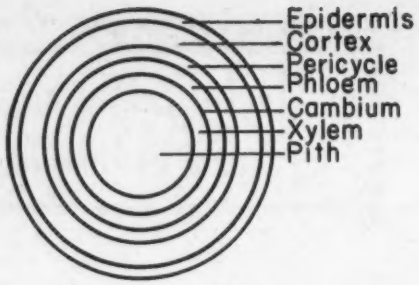


FIG. 2
Dicotyledonous Stem

pulp or paper samples from these species, the general features of each type of cell will be outlined.

Fibers are long, relatively narrow, empty cells with typically thick, usually lignified walls. Most commonly the cell ends are pointed. Pitting is not a characteristic feature of fiber walls; but when present, the pits will appear as simple rounded openings or slits.

Vessels consist of a series of *vessel segments* lying end to end to form conducting tubes in the xylem. These cells include large empty cell cavities and their breadth is greater than that of the fibers. The ends of vessel segments are commonly blunt and the end wall is perforated to permit more ready communication between the individual cells. Vessel walls are usually thin and characteristically marked by numerous pits of various shapes. *Annular* vessels, which consist of a series of rings, and *spiral* vessels, the cell wall of which consists of a spiral winding, occur less frequently.

Parenchyma cells remain alive for a long period in the plant and consequently retain active protoplasm in the cell cavity. Cells of this type are thin-walled and sparingly pitted; their end walls are complete (not perforated) and more or less right-angled; and their length is often not much greater than their width.

Epidermal cells are derived from the tissue which forms the outermost layer of the leaf or stem. Their most distinctive feature is a wavy or toothed cell margin. When not completely separated one from another, the cells are clearly shown to interlock. *Stomata*, openings to provide for the exchange of gases between the plant and the atmosphere, are interspersed among the epidermal cells. Certain cells of the epidermis are variously altered in shape to short spurlike projections and even to long tubular hairs. Such cells are known as *trichomes* and inasmuch as the identification of a sample may hinge upon their presence or absence, the necessity for accurate observation and interpretation in microscopic work is apparent.

Characteristics of Individual Species

1. MANILA HEMP, *Musa textilis* (Figs. 3 and 4)

When used in pulp, the vascular bundle fibers from the leaves and stems are isolated from other plant tissues and thus provide the only means for the identification of this species. The fibers are short in comparison with the pericyclic fibers of flax or hemp. The ends of the fibers are pointed and the fibers are characterized by thin cell walls which enclose a clearly defined broad lumen of uniform width. The cell walls are not further distinguished by any characteristic

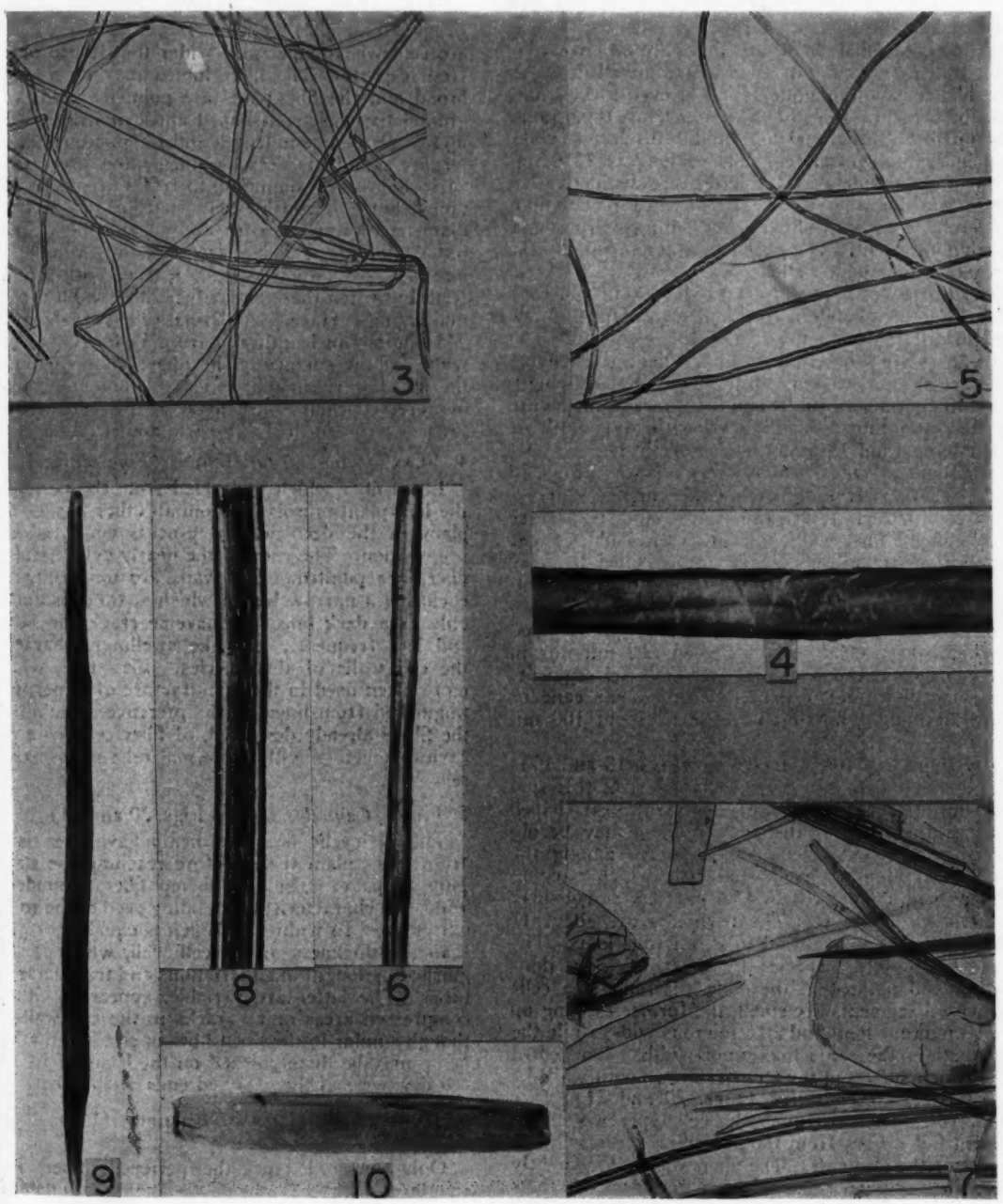
markings. Parenchyma cells (so-called "hurds") are normally present in most manila hemp papers.

2. New Zealand flax, *Phormium tenax* (Figs. 5 and 6)

The fibers of this flax lily are derived from the vascular bundles of the leaves. When incompletely separated from other tissues of the leaf, they are accompanied by epidermal cells, vessel segments and parenchyma. In size these fibers are similar to those of the preceding species. In contrast to Manila hemp, however, the cell walls are thick and the uniformly narrow cell cavities are distinguishable only with some difficulty. The fiber ends taper to a moderately narrow point. An occasional fiber is extremely thin-walled and marked with few scattered pits.

3. The Grasses, *Gramineae*

Included in the grass family are sugar cane, corn, esparto, the cereal straws and bamboo. Because of the close relationship of these species, a similarity in their cellular elements might be anticipated. The entire stem of these plants, together with the leaves in the case of grasses and straws, is utilized, with a re-



Figs. 3, 4, 5, 6, 7, 8, 9 and 10

Fig. 3—Manila Hemp Fibers, 100×. Fig. 4—Manila Hemp Fibers, 380×. Fig. 5—New Zealand Flax Fibers, 100×. Fig. 6—New Zealand Flax Fiber, 380×. Fig. 7—Sugar Cane, 100×. Fig. 8—Sugar Cane Fiber, 380×. Fig. 9—Sugar Cane Short Fiber, 105×. Fig. 10—Sugar Cane Parenchyma Cell, 105×.

sultant variety of characteristic cell types evident in the pulp. Some of the cells which distinguish this group from others used in the manufacture of paper include relatively short fibers from the vascular bundle; cells of the ground tissue which are barrel-shaped to narrow-cylindrical; various vessel segments of the annular, spiral and pitted types; and epidermal cells, either in masses or as individuals, easily recognized because of their more or less irregular margins, especially when characterized by prominent toothlike projections.

(a) Sugar cane, *Saccharum officinarum* (Figs. 7, 8, 9 and 10): The vascular bundle fibers in this species are thin- to thick-walled with pointed ends. Except for occasional small pits, there are no characteristic wall markings. In addition, thin-walled, short, fiberlike cells with oblique, blunt, or even forked ends may be present. Cells of the parenchyma type, ranging up to 850 microns[1] long and 140 microns wide, and individual vessel segments as long as 1350 microns and as wide as 150 microns are distinctive because of their large size. Narrow, rectangular, epidermal cells with slightly undulating margins are sparingly present. The guard cells accompanying the stomata are smooth-walled.

(b) Corn, *Zea Mays* (Figs. 11, 12, 13, 14 and 15): The differences between corn and sugar cane are limited to differences in the size of like elements. The corn fibers are shorter and more slender; parenchyma cells are shorter, varying up to 325 microns in length and 150 microns in width; and the vessel segments are shorter, attaining a maximum length and width of 600 microns and 150 microns, respectively.

(c) Bamboo, *Dendrocalamus arundinacea* (Figs. 16 and 17): Apart from the frequent occurence of irregular compressed areas and spiral and transverse checks in the fiber walls, this species resembles sugar cane. The typical fibers are accompanied by very wide, thin-walled fibers. Measurement of the dimensions of the parenchyma cells serves to separate bamboo from either of the two preceding species inasmuch as these cells seldom exceed 250 microns in length or 65 microns in diameter. Vessel segments are somewhat smaller than those of sugar cane or corn, attaining a maximum width of about 100 microns.

(d) Esparto, *Stipa tenacissima* (Figs. 18 and 19): The distinctive feature which characterizes this species lies in the presence of abundant pear-shaped trichomes, hooked at the apex. These may be observed as isolated cells or interspersed among the small, sharp-toothed epidermal cells which vary in surface width from 6.8 to 13.6 microns and display numerous round pits. The trichomes are about 17 microns wide and from 30 to 50 microns long. The fibers of this grass species are short, thick- or thin-walled, and pointed at the ends. Parenchyma cells and vessel segments are small, the former ranging up to 350 microns long and 20.5 microns wide, while the latter attain the same maximum width. The guard cells which surround the stomata are smooth-walled.

(e) Rice, *Oryza sativa* (Figs. 20 and 21): Rice straw resembles esparto in the cell types which are present but differs from the preceding species chiefly in size of the elements. The fibers of rice are slightly more slender than those of esparto grass, but their length is greater. Appearing among the larger (10.2 to 20.5 microns wide), heavily pitted epidermal cells are prominent appressed trichomes of about the same size as those of esparto. These cells may be distinguished from the trichomes of esparto by their straight tips. The stomata are surrounded by distinctive conspicuously dentate guard cells. Barrel-shaped parenchyma, characteristic of all these grass species except esparto, are accompanied by cylindrical cells of like type and range up to 350 microns long and a maximum of 82 microns wide. The long, slender vessel segments reach a maximum size of 650 microns by 40 microns.

(f) Cereal Straws—Barley, *Hordeum* sp. (Fig. 22); Oat, *Avena sativa* (Fig. 23); Rye, *Secale cereale* (Figs. 24 and 25); Wheat, *Triticum sativum* (Figs. 26 and 27): The fibers of these cereal straws are somewhat longer and wider than those obtained from esparto. The fiber lumen may be narrow or broad and the fiber ends are pointed. Cells of the ground tissue, barrel-shaped and cylindrical, varying up to 450 microns in length and 130 microns in diameter, are abundant. Vessel segments, too, are extremely variable in size, ranging up to 1000 microns by 60 microns, but fall considerably short of the maximum diameter attained in corn and sugar cane. Sparsely pitted epidermal cells are frequent and variable. Their margins are characteristically marked with prominent teeth but often these are reduced to exhibit a slightly undulating surface. Epidermal cells vary from 36 to 445 microns in length and from 10 to 41 microns in width on the surface. The guard cells surrounding the stomata are smooth-walled. Although inconspicuous erect trichomes are present, their occurrence is far less frequent than in esparto and rice.

4. Flax, *Linum usitatissimum* (Figs. 28 and 29)

Linen fiber which is derived from the pericycle of the flax plant is isolated from all other tissues of the plant in the decorticating process employed in its preparation. The ends of the nearly cylindrical, long fibers are pointed. The walls are uniformly thick, enclosing a narrow lumen which at times is apparent only as a dark line. Transverse cracks or failures, and less frequently nodelike swellings, characterize the cell walls of this species. Flax tow, which is more often used in the manufacture of paper, is distinguished from linen by the presence, in addition to the fibers already described, of fiber cells with broad cavities together with epidermal cells and small vessels.

5. Hemp, *Cannabis sativa* (Figs. 30 and 31)

The pericyclic fibers of hemp have been isolated from other plant tissue before reaching the stage of pulp or paper. The long hemp fiber is moderately wide, this characteristic extending even to the rounded extremities. In width the lumen is equal to or greater than the thickness of the cell wall, which is distinguished by longitudinal striations and transverse fractures. The latter are variable, appearing either as compressed areas or as cracks in the cell wall. Although similar to the linen fiber in size and markings, hemp may be distinguished on the basis of its wider cell cavities and the rounded ends of the fiber.

6. Ramie, *Boehmeria tenacissima* (Figs. 32 and 33)

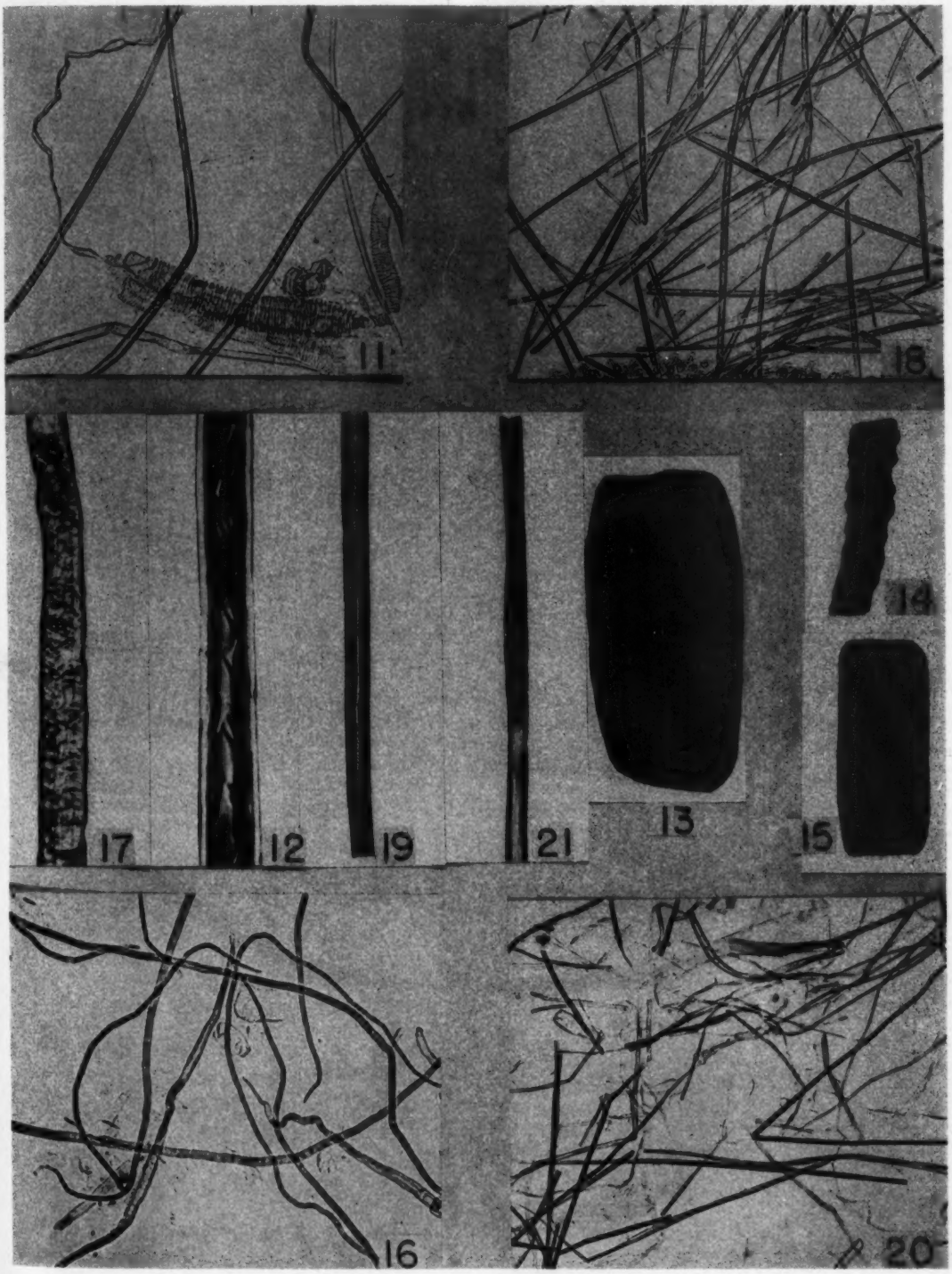
Only one cell type, the pericyclic fiber, is encountered in the ramie of commerce. Outstanding among the characteristics of these fibers is their comparatively great size. Their dimensions of length and diameter alone are sufficient for purposes of identification. The diameter of a single fiber is quite vari-

[1] One micron = 0.001 mm.

able throughout its length, ranging from sections which are flat and broad to others which are narrow and heavily walled. The ramie fiber tapers to a comparatively narrow, rounded tip. Prominent transverse fissures of irregular nature or faint longitudinal or spiral striations usually mark the cell walls.

7. JUTE, *Corchorus capsularis* (Figs. 34 and 35)

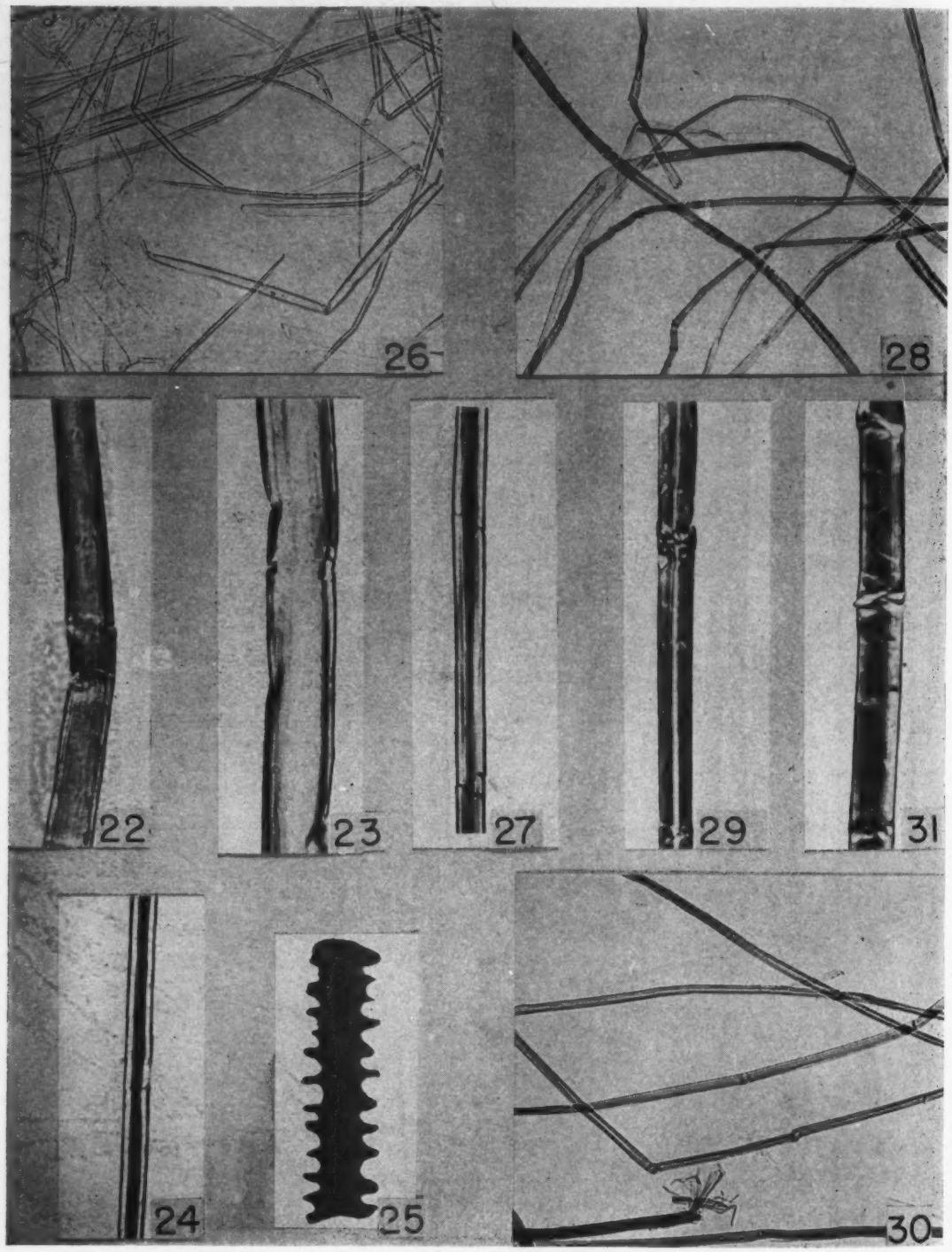
The jute fiber is a representative of true bast fibrous materials as the fiber is derived from the phloem. In



FIGS. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 AND 21

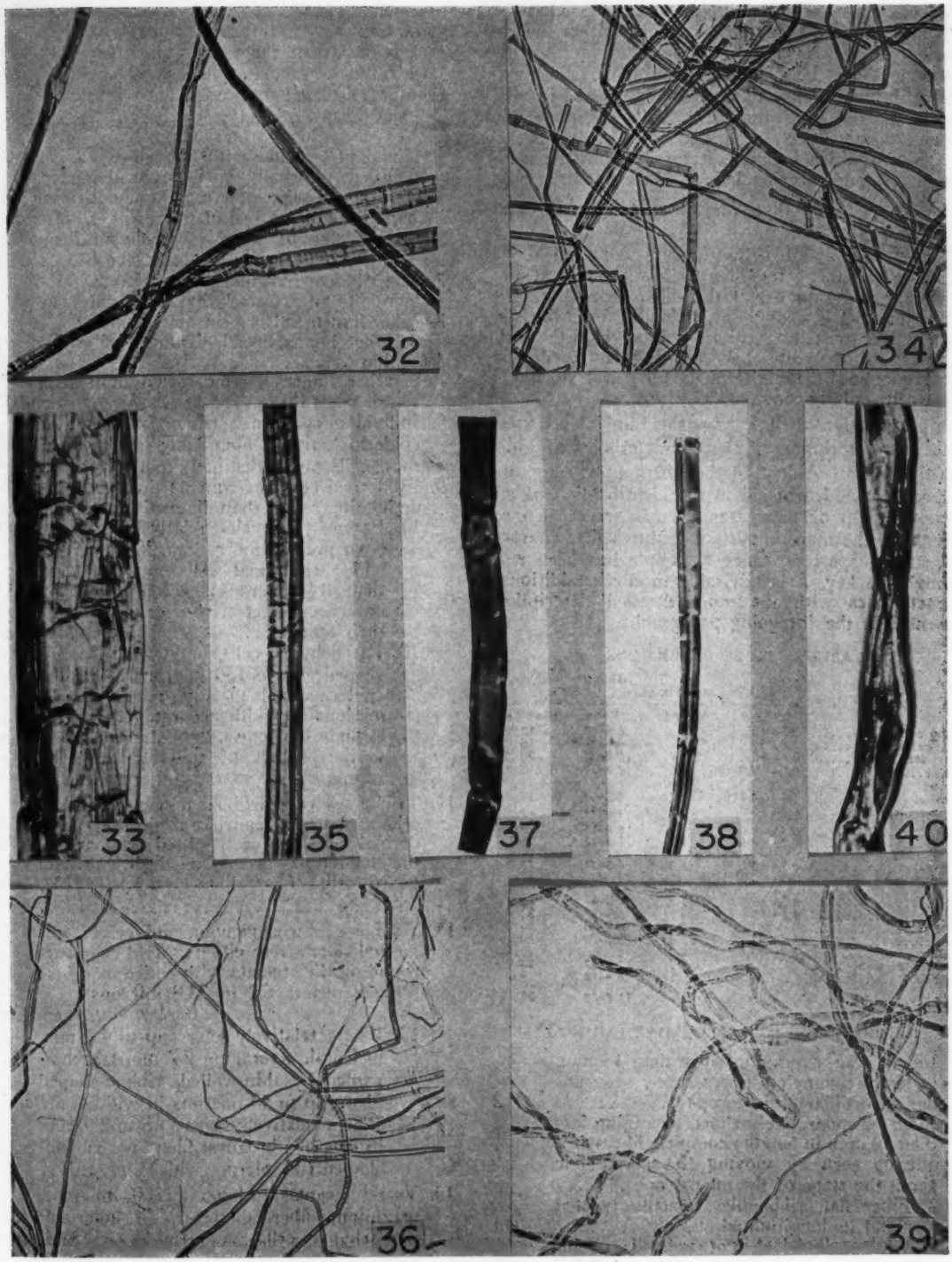
FIG. 11—Corn Fibers, 100×. FIG. 12—Corn Fiber, 380×. FIG. 13—Corn Parenchyma Cell, 380×. FIG. 14—Corn Epidermal Cell, 380×. FIG. 15—Corn Vessel Segment, 75×. FIG. 16—Bamboo Fibers, 100×. FIG. 17—Bamboo Fiber, 380×. FIG. 18—Esparto Fibers, 100×. FIG. 19—Esparto Fiber, 380×. FIG. 20—Rice Fibers, 100×. FIG. 21—Rice Fiber, 380×.

contrast to the preceding pericyclic fibers, the cylindrical cells of jute are comparatively short. Except for occasional transverse cracks, the cell walls are relatively smooth and unmarked. The cell cavity is usually as broad as the cell wall but is constricted at irregular intervals and then appears very narrow in contrast to the much thicker cell walls. A lumen in the fiber may be entirely missing (closed) for a short distance. The long, narrow ends of the fiber are extremely slender.



FIGS. 22, 23, 24, 25, 26, 27, 28, 29, 30 AND 31

FIG. 22—Barley Fiber, 380×. FIG. 23—Oat Fiber, 380×. FIG. 24—Rye Fiber, 380×. FIG. 25—Rye Epidermal Cell, 380×. FIG. 26—Wheat Fibers, 100×. FIG. 27—Wheat Fiber, 380×. FIG. 28—Flax Fibers, 100×. FIG. 29—Flax Fiber, 380×. FIG. 30—Hemp Fibers, 100×. FIG. 31—Hemp Fiber 380×.



FIGS. 32, 33, 34, 35, 36, 37, 38, 39 AND 40

FIG. 32—Ramie Fibers, 100×. FIG. 33—Ramie Fiber, 380×. FIG. 34—Jute Fibers, 100×. FIG. 35—Jute Fiber, 380×. FIG. 36—Mitsumata Fibers, 100×. FIG. 37—Mitsumata Fiber (Central Segment), 380×. FIG. 38—Mitsumata Fiber (Near Fiber End), 380×. FIG. 39—Cotton Fibers, 100×. FIG. 40—Cotton Fiber, 380×.

8. MITSUMATA, *Edgeworthia papyrifera* (Figs. 36, 37 and 38)

Mitsumata fibers are obtained from the secondary phloem of the steam of the oriental shrub bearing this name. Like jute in type, this species may be differentiated from flax, hemp and ramie by its relatively short fiber. A feature which distinguishes mitsumata is a fairly broad central segment 300 microns in length, beyond which the fiber is noticeably more slender, tapering at each end to a narrow,

rounded point. Throughout the central portion the lumen is broader than the cell walls, but in the remainder of the fiber length the cavity is generally less than one third the fiber width in diameter. Relatively inconspicuous transverse fractures in the fiber walls aid in distinguishing this species. The fibers are not entirely separated from other cells of the phloem which include rectangular, pitted parenchyma cells and occasional sieve-tube elements.

9. Cotton, *Gossypium hirsutum* (Figs. 39 and 40)

The seed hair of cotton differs from all other fibers discussed, as the fiber is always torn at the basal end and rounded at the other extremity. In shape, the fiber is a long, flat, ribbonlike cell which is more or less twisted. At those points where the wall thickness is the greatest, the twisting of the fiber is less pronounced. Longitudinal and spiral striations in the cell wall are common.

A presentation of fiber dimensions in Table I completes the description of the characteristics of individual species. A key to the fibers previously described is included to aid in the identification of an unknown pulp or paper sample. It serves also to summarize the more important features that characterize these species. Once a sample has been run through the key, it is advisable to check additional characteristics with the more detailed description presented in the foregoing paragraphs.

TABLE I.—FIBER DIMENSIONS

Species	Length of fiber, mm.		Diameter of fiber, microns	
	Range	Average	Range	Average
Manila hemp	2.5– 12	6	6.8–40	18
New Zealand flax	3.9– 15	9	6.8–27	16
Sugar cane	0.8– 2.8	1.7	10.2–34	20
Corn	0.5– 2.9	1.5	13.7–24	18
Bamboo				
Typical	1.5– 4.4	2.7	6.8–27	14
Thin-walled	2.8– 3.2	....	21 –41	...
Esparto	0.6– 1.6	1.1	6.8–13.6	9.2
Rice	0.7– 3.5	1.5	5.1–13.6	8.5
Cereal straws				
Typical	0.7– 3.1	1.5	6.8–24	13.3
Thin-walled	0.8– 2.9	....	27 –34	...
Flax	4.0– 66	25	6.8–37	16
Hemp	5.0– 55	20	6.8–50	22
Ramie	60 –250	120	10.8–80	50
Jute	1.5– 5.0	2.0	10.2–25	20
Mitsumata	2.4– 3.6	2.9	.....	...
Central segment	.....	....	11.9–27	18
Remainder of length.	.....	....	6.8–13.7	9.0
Cotton	10 – 40	18	11.9–38	20

Key to Nonwoody Vegetable Papermaking Fibers

1. Fibers long, averaging more than 15 mm. in length; complete fibers rarely seen under an ordinary microscope 2
1. Fibers comparatively short, averaging less than 10 mm. in length; complete fibers frequently seen by moving the glass slide about the stage of the microscope 5
2. Fiber flat, ribbonlike; usually twisted about its longitudinal axis ..... *Cotton*
2. Fiber cylindrical, not twisted; prominent transverse fractures in the cell wall 3
3. Individual fibers variable in width, up to 80 microns in width at their broadest portions ..... *Ramie*
3. Individual fibers quite uniform in diameter; the broadest fibers not more than 50 microns wide 4
4. Narrow lumen clearly defined within thick fiber walls; fibers pointed at their ends ..... *Flax*
4. Cell cavity rather obscure but often wider than the fiber wall; fiber ends blunt ..... *Hemp*
5. Fibers isolated or accompanied by occasional cells of other types 6
5. Vessel segments and parenchyma cells abundant together with fibers 9
6. Fiber unusually variable in diameter, a central segment averaging about twice as wide as the rest of the fiber ....*Mitsumata*
6. Diameter of fiber relatively uniform throughout nearly its entire length 7
7. Fiber lumen irregularly constricted at intervals to an extremely narrow canal..... *Jute*
7. Fiber lumen uniform in diameter 8
8. Fiber lumen broad, distinct; cell walls thin .....*Manila hemp*
8. Fiber lumen narrow, often indistinct; cell walls thick .....*New Zealand flax*
9. Individual epidermal cells or fragments of epidermal tissue abundant; margins of these cells rather distinctly toothed 10
9. Epidermal cells infrequent; their margins undulating rather than distinctly toothed.. 12
10. Parenchyma cells relatively narrow, none present more than 20.5 microns wide; epidermal cells narrow (less than 14 microns) accompanied by numerous erect trichomes, hooked at their apices .....*Esparto*
10. Parenchyma cells narrow to barrel-shaped; up to 130 microns in width; epidermal cells usually greater than 14 microns in width occur together with straight trichomes, the latter appressed to the surface of epidermal cells or comparatively sparse and erect 11
11. Trichomes conspicuous among epidermal cells as flattened, spurlike projections; epidermal cells profusely pitted; stomata of the epidermis accompanied by dentate guard cells; fiber diameters 5.1 to 13.6 microns ..... *Rice*
11. Trichomes inconspicuous and erect; epidermal cells rarely pitted; guard cells surrounding the stomata with entire margins; fiber diameters 6.8 to 23.8 microns *Barley, Oat, Rye, Wheat*
12. Fibers relatively long (up to 4.3 mm. in length, averaging 2.7 mm.) accompanied by thin-walled, ribbon-shaped fibers up to 40 microns in width....*Bamboo*
12. Fibers relatively short (up to 2.9 mm. in length); broadest fibers not ribbon-shaped (34 microns wide) 13
13. Vessel segments long (1350 microns, maximum fiber diameter 34 microns; parenchyma cells as long as 850 microns .....*Sugar cane*
13. Vessel segments comparatively short (600 microns maximum); maximum fiber diameter 24 microns; parenchyma cells as long as 325 microns ..... *Corn*

Reference

Harrar, Lodewick, and Wangaard, "Technology of Papermaking Fibers". Fritz Publications, Inc., 59 East Van Buren St., Chicago, Ill. Reprinted from *Paper Ind.* 16:103-111 and 327-335 (May, Aug., 1934). and 19:777-784 (Oct., 1937).

Making Best Use of Existing Power Equipment*

By R. S. Hawley[1]

Abstract

This paper presents in somewhat general form a discussion of studies to be made and methods that may be employed to bring about improved economy and increased capacity with existing equipment in industrial steam power plants. The content of the paper is presented in general terms rather than technical detail and is based on the author's experience in industrial plant surveys. The title would seem to limit the discussion to the power plant but it seems necessary to take into account certain factors which in themselves have to do with the industry which the power plant serves but which indirectly affect the boiler room and turbine room capacity.

Raw Materials

The boiler plant or the power plant can be considered a factory which begins its process with certain raw materials and converts these materials into manufactured products. Every plant manager recognizes the importance of purchasing high-grade raw materials if he wants a high-grade finished product and also realizes the practical necessity of analyzing factory methods and conversion costs. Unfortunately not all managements are willing to give even a reasonable amount of thought to the boiler room which serves his manufacturing plant. Activities in recent years, however, are an indication that plant owners are rapidly becoming aware of the savings that can be made in the power house by the use of properly selected fuel, high-grade equipment, and good operating methods. Since the raw materials used in the production of steam are fuel, air, and water, any study of operation must necessarily include one or all three items, and the proper selection and treatment of the raw materials must affect the plant economy and capacity. Because of the fact that coal is the most commonly used fuel in steam production our remarks will be confined to it although the same principles will hold to a considerable extent regardless of the kind of fuel used whether coal, gas, or oil.

Coal Selection for Stokers

In the year 1918 the federal government in an attempt to reduce haulage and to equalize the distribution of coal created a Fuel Administration. Although fundamentally sound in principle and having much to commend it, nevertheless the plans worked out by this administration board came in for a considerable amount of criticism. Serving as plant inspector during this period, the writer had an opportunity to observe some interesting and sometimes most serious situations. Some of you will recall that one of the regulations was the zoning of coal—i.e., coal mined in certain fields was to be distributed for use within rather definite areas. Little thought was given to the type of equipment in the power plants of each area and the result was that many plant owners were compelled to purchase and use coal not at all suited to their particular equipment. One plant investigated was located not far from Chicago, and at that time was equipped with **V**-type stokers and Wickes vertical boilers. Under the regulation of the Fuel Administration they were compelled to use a low-grade coal with high ash content, low ash softening temperature, and a considerable amount of dirt. Because of plant demands it was necessary to operate at as high ratings as possible. The result, of course, was an enormous amount of soft clinker which gummed up the grates and impinged on the boiler tubes. In three weeks operation the gas passages between the boiler tubes were reduced to such an extent that the boiler had to be taken off the line. This case is cited merely to show the fallacy of attempting to use coal that is not suitable for the particular plant equipment.

It is true, of course, that coal burning equipment today is much more flexible and adaptable to a wider variety of coals than was the case twenty years ago. But with higher ratings and larger boiler units the fact still holds that for best results the coal must be selected to suit existing equipment and conditions of operation. Any attempt to improve boiler plant efficiency and increase capacity necessarily begins with the selection of coal. Specifications for the purchase of coal should include not only the proximate analysis and heating value but also the size, size consist, and the ash fusion temperature. There is a tendency on the part of some purchasers to include additional items in their coal specifications.

B. E. Tate, Chief Engineer, The National Cash Register Company, in a paper on *The Use Value* vs. *The Scientific Value of Coals for Steam Generation,* given before a meeting of Appalachian Coals, Incorporated, in June, 1937, at Detroit, makes the following statement:

"The following items are generally to be considered by buyers of coal for power plants: cost, f.o.b., freight and delivery cost, heat content, volatile content, ash content, moisture content, hydrogen content, sulphur content, ash fusing temperature, grindability, swelling and caking characteristics, size and uniformity of size, storing characteristics, reliability of source of supply, uniformity of quality, and regularity of shipment."

Coal producers generally recognize the importance of this requirement and are equipped to supply the size of coal required. In many instances also they are in a position to assist the purchaser in the selection of coal that best suits his equipment.

Changing from a low-grade coal to one of higher grade is one method of increasing boiler output. On a grate of fixed area, attempts to increase the combustion rate per square foot of grade may result in

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.

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bad operating conditions, clinker trouble, and high stoker maintenance. Burning of coal of higher heating value or sometimes a mixture will in general increase the boiler output and improve the efficiency without increasing the burning rate per square foot of grate surface.

Another factor often overlooked but necessary to good stoker performance is the uniformity of coal mixtures and the prevention of segregation in storage, bunker, and stoker. Best results cannot be obtained if there are successive lanes of fine and coarse coal on a stoker bed nor if a carload of fine coal is used one day and a carload of coarse the following day. Heavy losses often occur before the operator is able to properly adjust the air supply to a change in fuel bed conditions.

Coal Handling

Although coal may be sized and proportioned at the mine for proper mixture, it must not be assumed that this mixture will remain uniform until it reaches the stoker hopper. Handling of coal results in segregation of fines and coarse unless precautionary measures are taken. When coal falls from a height of even a few feet it tends to form a cone with the fines in the center. Coal will segregate when falling from the gates of an overhead conveyor trough into a bunker. The same thing may occur from bunker to stoker hopper through coal spouts incorrectly designed or not properly spaced. Self-unloading vessels with long conveyor booms are one of the worst offenders. When possible to do so, large storage piles should be worked over with drag line scraper, overhead crane, or tractor to keep the mixture uniform. Incidentally this will also reduce the tendency to spontaneous combustion and thus insure better coal for the boiler room.

Pulverized Coal Selection

The statement is frequently made that any grade of coal can be burned satisfactorily in pulverized fuel form. This statement is somewhat misleading because it also can be said without prejudice that any grade of coal can be satisfactorily burned on stokers. While it is probably true (and some may question this) that pulverizers as a group are more adaptable to a wider range of coals than any single type of stoker, nevertheless certain precautions must be taken if best results are to be obtained. For example, attempting to pulverize slack coal in a hammer mill will usually result in loss of pulverizer capacity. The same result may be expected from coal having a high moisture content unless it is predried or is used with preheated air at high temperature. The presence of a small amount of clay in the coal will reduce the capacity of a ball or roller mill especially if the coal is wet. Generally speaking, coal to be burned in pulverized form must be as carefully selected as to size and moisture content as for stoker firing. Furthermore careful consideration must be given to the ash fusion temperature. Coal may pulverize satisfactorily but cause serious trouble due to slagging on the furnace walls and boiler tubes. Water-cooled furnaces to reduce furnace temperatures are perhaps the best solution for these conditions, and it is often quite feasible to add water wall surface to existing furnaces at relatively small expense. The other alternative is to operate with high air excess and lower combustion temperature. Increased efficiency and capacity will usually result from the addition of water wall surface for either stoker or pulverized fuel firing. If this is not feasible then coal having a high ash fusion temperature should be selected. Grindability is another factor that should be carefully considered in the purchase of coal for pulverized fuel plants.

On the general subject of the Use Classification of Coal, the National Association of Purchasing Agents, in cooperation with technical societies and other agencies, has made available a series of over thirty papers, any of which may be obtained by addressing the above organization at 11 Park Place, New York City. A few of the papers that have particular significance in the selection of coal for industrial plants are here listed.

Series 3—Use No. 1—Hand Fired—B. Anthracite; Use No. 19—Domestic Anthracite—A. Hand Fired, B. Underfeed Stoker, C. Magazine-Type Burners; Use No. 22—Domestic Fireplaces—A. Anthracite, by Paul A. Mulcey, Assistant Director Anthracite Industries Laboratory, Primos, Pennsylvania.

Series 4—Use No. 2—The Spreader Stoker, by J. F. Barkley, Supervising Engineer, Fuel Economy Service, U. S. Bureau of Mines, Washington, D. C.

Series 5—Use No. 1—The Hand-Fired Downdraft Furnace, by J. F. Barkley, Supervising Engineer, Fuel Economy Service, U. S. Bureau of Mines, Washington, D. C.

Series 9—Use No. 1—Hand-Fired—A. Bituminous Coal, by R. L. Rowan, Fuel Engineer, General Coal Company, Philadelphia, Pa.

Series 13—Use No. 6—Pulverized Coal, by J. E. Billings, Executive Assistant, The Babcock and Wilcox Company, New York City.

Series 14—Use No. 3—Traveling or Chain Grate Stokers—A. Anthracite, by George P. Jackson, Chief Engineer. Combustion Engineering Company, Incorporated, New York City.

Series 24—Use No. 3—Traveling or Chain Grate Stokers—B. Bituminous, by Osborn Monnett, Commercial Testing and Engineering Company, Chicago, Illinois.

Series 27—Use No. 4—Overfeed Stokers, by George P. Jackson, Chief Engineer, Combustion Engineering Company, Incorporated, 200 Madison Avenue, New York City.

Series 28—Use No. 5—Underfeed Stoker, by D. J. Mosshart, Assistant Chief Engineer, Stoker Department, Westinghouse Electric and Manufacturing Company, Philadelphia, Pennsylvania.

The Air Supply and Control

Controlling the air supply is essentially an operating factor. Installing the best boiler equipment and purchasing the best quality of coal is no guarantee of efficient results. Nor does the addition of CO_2 and flue-gas temperature recorders necessarily result in improvement although this is of course a step in the right direction and furnishes a means for improving plant efficiency and increasing its capacity. We are all familiar with the importance of air control. Most of us have also had the experience of observing the plant operator religiously removing a daily chart from a CO_2 meter and replacing it with a fresh one only to file the recorded chart in a convenient drawer often never referred to. But this is not a criticism of the operator. In many industrial plants the operator's orders are to produce steam and keep the pressure up. Encouragement or commendation is rarely given him by the management if he accomplishes it with less coal. Too often the operator is left without instructions as to the significance of air control as gaged by recording instruments. What is needed in such cases is, first, a sympathetic attitude on the part of the management and, second, active assistance in securing for his operators the necessary instruction to enable them to understand and to effectively use the equipment available. An increase in wages or a bonus is often an effective way of securing good results.

Since the output of a boiler is directly dependent upon the amount of coal burned and since the quantity of coal burned per unit of time is determined by the capacity of the fans or chimney, it follows at once that any reduction in air quantity to that required for good combustion not only improves efficiency but makes it possible to burn additional fuel and thereby increase the boiler output. Raising the CO_2 content of the flue gas means lower excess air and makes available the reserve fan capacity.

Automatic Combustion Control

The addition of automatic combustion control equipment either in part or in whole is another step to insure good combustion and high efficiency but again it must not be assumed that the mere installation of combustion control equipment is a guarantee of excellent results. A well-informed competent operator can obtain good results without much in the way of automatic control equipment provided his time is not too occupied with other duties. He is likely to do a better job, however, with less effort if he has the assistance of such equipment. Much depends upon the nature of the boiler load. If the load is steady and coal is uniform, good results may be secured with a minimum of attention and with little control equipment. But if the load is variable, automatic combustion control is an essential to efficient operation.

Let me mention two industrial plants that have recently come to my attention. In the first plant installed some 20 years ago were three 300 hp. boilers, each equipped with twin retort underfeed stokers with forced draft fans, breeching dampers, and chimney draft. Both stokers and fans were hand controlled. Flue gas analysis in this plant showed consistently 12 to 13% CO_2. The second plant installed within the past four years had two 300 hp. boilers each equipped with a spreader-type stoker, constant-speed forced draft fans each with louvre damper, breeching dampers, and chimney. In this plant the designing engineer had recommended the installation of automatic combustion control equipment and it consisted of a single water-actuated piston regulator to control simultaneously two louvre dampers, two butterfly breeching dampers, and two stoker feeds. The boilers were apparently operating satisfactorily but the stack gas analysis here showed a maximum of 8% CO_2 and an average of less than 6%. This plant would have been operated more efficiently under hand control but better still the necessary equipment to give real automatic combustion control should have been recommended. The operator in this plant had complete confidence in the regulator and was amazed to find that his boiler room operation was extremely inefficient.

Soot Blowers

Soot blowers are considered an essential piece of equipment on every major boiler but again the skill and judgment of the operator will in a large measure determine the success of this equipment in keeping the boiler surfaces free of soot. Blowing too frequently is a waste of steam, while blowing too seldom results in continuous heat losses due largely to increase in exit flue gas temperature. Soot is an excellent insulator. Some boiler room foremen instruct their operators to blow tubes about once in 6 to 8 hours; others use a 4-hour period while in some cases twice in 24 hours is the rule. A flue-gas temperature recorder is one of the best guides to determine how frequently the blowers should be used.

Best results cannot be obtained unless the soot blowing elements are kept in proper condition. Elements sometimes become warped. Worn nozzles lose their effectiveness and waste steam. Sometimes the installation of an additional well placed element will prove to be an excellent investment.

Feedwater

The third raw material used in the production of steam is the boiler feedwater. The loss of efficiency and capacity due to the formation of scale on heating surfaces, the corrosive effects of free gases in the steam on turbine blades, heating units, and piping, impurities in the boiler water that cause foaming and priming with their attending ill effects are well known to all of us but the treatment of boiler water for the prevention of scale and the elimination of other troubles is not within the province of this paper. Nor does the writer feel competent to discuss a subject which calls for expert advice in the very highly specialized field of boiler feedwater chemistry. No one questions the necessity of having the best feedwater obtainable if high efficiency and capacity are to be maintained in the boiler plant.

In the industrial plant, however, there are a number of factors that are often lost sight of, each of which may have a definite bearing on this subject.

Waste Steam and Condensate

In the central station plant with straight condensing operation there is only a small amount of makeup and the control of the feedwater is comparatively simple, but in the average industrial plant, steam is used not only for generating purposes but for plant heating and processing. Steam may be distributed over a considerable area and used at many points for various purposes. The return of condensate to the boiler room is of prime importance but all too frequently the control of the system is left to the manufacturing departments who look upon the power plant as simply a necessary adjunct to the factory and have little time or thought for boiler room conditions. Waste of steam to the atmosphere or condensate to the sewer means a greater percentage of raw water makeup in the boiler room. Regardless of what method of water treatment is employed additional losses will occur either in blowdown, additional steam for water heating, or carryover. Every effort should be made to recover condensate and return it to the boiler room, thus insuring improved operating conditions, with higher efficiency and capacity.

Steam Traps and Drains

A prominent engineer recently remarked that a good steam trap is yet to be made. While the author is not inclined to agree with this statement in its entirety, the fact does remain that the selection and use of traps in many plants leave much to be desired. Too often a trap once installed is promptly forgotten and eventually it ceases to function as a control mechanism. The trap manufacturer should not be condemned for failure of his trap to perform under any and all conditions. One of the most common errors is the purchase of traps with too small a capacity for the job. A leaky trap is little better than no trap at all and may result in a serious waste of steam or condensate.

A few years ago a survey was made on a plant to determine the extent of the indirect losses and to see what might be accomplished in reducing condensate loss. Fortunately the plant was not operating full time and it was possible to do a thorough job. Traps were inspected and repaired, drain lines were checked and valves removed. Every major piece of equipment using steam was tested. Leaks were discovered in several large heating coils. Many traps were not functioning. As an example of lack of attention, the drains from two large blast coils had been disconnected during a repair job some years previous and permitted to discharge temporarily into the sewer.

This temporary arrangement had been forgotten and during the intervening period of several years all the condensate had been lost. At the return pump a continuous stream of cold raw water more than was required for makeup had been injected into the condensate line to kill the vapor. When the job was completed the percentage of makeup water for boiler feed had been reduced from approximately 60% to less than 40%. In this plant a large storage tank for treated water was later installed to be drawn on for starting up periods.

Balancing Loads on Power Units

In many industrial plants particularly of the older group one will often find a number of prime movers. It is characteristic of production departments to load their equipment to the limit without regard for the capacity of the engine or turbine serving their department. Other departments in the same plant may be lightly loaded. A study of the power requirements of various departments frequently reveals a method of redistributing the power loads with a resultant decrease in steam consumption in the entire plant.

The Use of Live Steam for Processing

There is perhaps no more common cause for dispute between boiler room operators and production departments than the installation of a live steam line for emergency and placed under the control of the production department. At the time when the boiler room operators are doing their best to produce the necessary quantity of steam, sometimes under extremely adverse conditions, these emergency live steam lines are likely to be open the widest. Steam and fuel are wasted and plant production is slowed down. Automatic controls will flatten out these peaks and enable the boiler room to operate at higher efficiency.

Carry-over and Blowdown

The quantity of raw makeup water in the average industrial plant is likely to be fairly large and for this reason internal treatment of boiler feedwater either in whole or in part is often found to be the most economical method. All waters from natural sources of supply carry impurities in some form. The steam boiler is not unlike an evaporator in which the vapor is taken off and the solids remain in the boiler. These solids unless correctly treated will of course deposit and form scale on the boiler heating surface. The introduction of neutralizing agents to prevent scale and keep the solids in solution will build up concentration in the boiler water. If the concentration is carried too high, carry-over is likely to occur. Blowing-down the boiler becomes necessary then to reduce concentration. This operation of course, results in a definite heat loss. It becomes apparent at once that the higher the concentration can be carried the lower will be the blowdown loss.

Concentrates Should Be Kept High

It should be remembered, however, that if priming occurs, the higher the concentration, the larger the amount of solids that will be carried into the steam lines. Consequently for best results we should aim to keep concentration as high as possible to prevent excessive blowdown losses but low enough to prevent priming.

Heavy blowdown losses require more raw makeup and thus the vicious cycle continues.

The answer to this problem is to keep a constant checkup on the boiler feedwater during operating periods. This is not a job that can be assigned to the average operator. Nor is there likely to be available in most industrial plants any individual who is competent to determine the best method of feedwater treatment.

It is usually advisable to secure the services of those organizations whose business it is to handle boiler feedwater problems.

Conclusions

Purchase the coal that is most suitable for your equipment and operating conditions.

Use care in handling the coal.

Keep boiler heating surfaces clean.

Instruct operators in the use of automatic combustion control equipment.

Conserve condensate.

Analyze the steam and power demands in the several departments of the factory.

Treat feedwater scientifically.

Water Specifications Discussed by Delaware Valley TAPPI

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held its first meeting of the 1941-42 season at the Engineers Club of Philadelphia, Philadelphia, Pa., on September 26, with Chairman Edward J. Albert presiding.

C. M. Connor, past chairman, gave a review and description of the proceedings of the TAPPI 1941 Fall Meeting at the University of Michigan, Ann Arbor, September 16-20. Mr. Connor commented on the many timely papers presented at the convention bearing on the present war preparation activities relating to national defense.

The feature of the session was the lecture by Robert T. Sheen, Director of the Consulting Division of W. H. & L. D. Betz, on specifications of water, methods of treatment, and case histories. The desirability of establishing specifications for water was discussed and Mr. Sheen commended the TAPPI Water Committee for its efforts in setting proposed limits of impurities.

Lewis B. Miller, chairman of the TAPPI Water Committee, discussed the work of the committee. Dr. Miller explained the proposed work to establish the upper limit of impurities of water for each of the major grades of pulp and paper.

Among those present were: Raymond Aiman, Edward J. Albert, Louis B. Astbury, J. R. Atwater, Herman Lied Berg, A. L. M. Bixler, D. S. Boder, Jr., Alan R. Boyd, F. W. Brainerd, Samuel M. Brattow, S. G. Briscoe, Theo. M. Chemerys, C. M. Connor, O. C. Cordes, J. D. Davis, D. Dieffenderfer, Paul Easton, John D. Gercke, Emerson N. Glaumer, Jesse Good, Joseph W. Gagus, Wilbert Hannes, Lois Hans, W. E. Horn, Harry Hulmes, Leslie Justice, J. J. Lafferty, P. M. Loddengaard, Willard H. Lapp, M. Craig Maxwell, Louise E. McGrath, Alex. McInnes, Lewis B. Miller, Edward Molin, A. H. Nadelmann, J. F. Nichola, S. W. Prichard, Charles W. Rivise, S. V. Rogers, J. Carl Schmidt, Edw. A. Shallcross, Robert T. Sheen, Chas. G. Shubert, R. J. Stuart, Jr., Geo. M. Suydam, John E. Tarman, Richard U. Temple, O. R. Thorndike, R. Tutt, Jr., Almeron W. Wickham, Vincent F. Waters.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 27, 1941

SUMMARY

Newsprint .....15,456 rolls

NEWSPRINT

The Bate Co., ———, Botwood, 325 rolls.
N. Y. Evening Journal, ———, Botwood, 1531 rolls.
Perkins Goodwin & Co., ———, Botwood, 857 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 401 rolls.
———, ———, Cornerbrook, 1,722 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 325 rolls.
———, ———, Liverpool, N.S., 2,268 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 321 rolls.
———, ———, Comeau Bay, 7,706 rolls.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., ———, Santos, 16 bls. waste.
Kauders Steuber Co., ———, Santos, 843 bls. cotton linters.
West Texas Cottonoil Co., ———, Santos, 96 bls. cotton linters.
Hercules Powder Co., ———, Santos, 778 bls. cotton linters.
West Texas Cottonoil Co., ———, Santos, 2,708 bls. cotton linters.
———, ———, Santos, 1,427 bls. cotton linters.
West Texas Cottonoil Co., ———, Santos, 218 bls. cotton linters.
———, ———, Santos, 1,852 bls. cotton linters.
West Texas Cottonoil Co., ———, Santos, 3,265 bls. cotton linters.
———, ———, Callao, 79 bls. cotton waste, 26 bls. cotton linters.
New England Waste Co., ———, Buenos Aires, 539 bls. cotton linters.
Woburn Trading Corp., ———, Buenos Aires, 770 bls. cotton linters.
New England Waste Co., ———, Santos, 100 bls. cotton linters.
———, ———, Santos, 1,300 bls. cotton linters.

BONE GLUE

Biological Raw Products, Inc., ———, Santos, 600 bags.
T. W. Dunn Co., ———, Santos, 300 bags.

GLUE STOCK

H. Remis Co., ———, Rio de Janiero, 195 bls.
H. Remis Co., ———, Rio de Janiero, 70 bdls.

CASEIN

H. S. Cramer, ———, Buenos Aires, 417 bags, (lactic).
American British Chemical Supplies, ———, Buenos Aires, 417 bags, (ground).
Manufacturers Trust Co., ———, Buenos Aires, 167 bags, (rennet).
Credo Commodities Co., ———, Buenos Aires, 250 bags.
Credo Commodities Co., ———, Buenos Aires, 334 bags.

WOOD PULP

Cellulose Sales Co., ———, Botwood, 389 bls. dry unbleached sulphite, 30 tons.
L. Hershman & Co., ———, Botwood, 1,796 bls. dry unbleached sulphite, 138 tons.
Finch Pruyro & Co., ———, Botwood, 1,507 bls. dry ground wood pulp, 166 tons.

Oklahoma Paper Firms Merge

OKLAHOMA CITY, Okla., September 29, 1941—Oklahoma Paper Company and the Globe Envelope Company, two large city paper products manufacturing plants, were merged into one single firm—the Oklahoma Paper Company—last month. The two companies employ nearly 200 persons.

The transaction was termed an outright merger of the Globe Envelope into the Oklahoma Paper Company. L. H. Mann, former president of the Globe, remains in the new setup as vice-president in charge of the envelope division. His company became the envelope division of the Oklahoma Paper Company.

Officials said "for the time being" the two plants will be operated separately, the Oklahoma Paper plant at 301-9 East California and the envelope division at its old location, 1741 Northwest Fifth street. Later the physical consolidation will be made.

J. Rex Huguley, vice-president of the Oklahoma Paper Company, said it is "The only paper plant in the country I know of in which production is so varied, now that the Globe people are merged with us." Manufactured products of the combined plants include a variety of notion and millinery bags, Christmas decorative papers, boxed social stationery, folding and setup boxes and envelopes of every description. Besides, they wholesale a full line of papers for every known kind of business.

The Oklahoma Paper Company was founded in Oklahoma City in 1900 and has been in operation continuously since then . . . adding the Pioneer Paper Box in 1933, a fine paper division in 1938, the Enid Paper Company of Enid in 1940 and the Globe Envelope last month.

Officials of the company, in addition to Huguley and Mann, are Sidney Strauss, president; S. A. Harpman, vice-president and secretary; R. L. McCormick, vice-president, and J. W. Mack, treasurer.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Roger L. Steller, student, Institute of Paper Chemistry, Appleton, Wis., a 1940 graduate of Ohio State University.

Bruce Suttle, pulp mill superintendent, St. Marys Kraft Corporation, St. Marys, Ga., has been reinstated.

R. I. Thieme, research chemist, Soundview Pulp Company, Everett, Wash., temporarily in U. S. Navy, a 1934 graduate of the University of Washington.

Charley L. Wagner, chemist, Marathon Paper Mills Company, Menasha, Wis., has been transferred from the Associate to the Active grade.

New York Paper and Pulp Market Review

Pulp Stocks Reported Steadily Decreasing Under Heavy Consumption—Resale Paper Prices Reflect Upward Trend With Only Moderate Increases To Date — Waste Paper Market Still Unsettled.

Office of the PAPER TRADE JOURNAL,
Wednesday, October 1, 1941.

A strong paper market, with increasing general comment on an anticipated shortage in paper, is reflected in the reports received from many manufacturers' representatives, jobbers, and general paper merchants during the current week.

Although the paper supply situation is in a confused state, competent authorities within the industry are of the opinion that no actual shortage so far as the consumer is concerned is likely to occur this year. The prevailing uncertainty apparently is caused by fear that government requirements in the future will take so large a part of the domestic output that normal civilian needs may be unobtainable. This situation may possibly develop later through greatly increased, and now unknown tonnage, involved in government buying but there appears to be no factual basis for a paper shortage now.

The index of general business activity for the week ended September 20 declined to 128.3%, from 130.2% for the preceding week, compared with 111.5% for the corresponding week last year. Paper board production was well maintained.

Paper production for the week ended September 20 was estimated at 103.8%, compared with 85.0% for 1940, with 93.5% for 1939, with 78.4% for 1938, and with 81.0% for the corresponding week for 1937.

Paper board production for the week ended September 20 was 99.0%, compared with 74.0% for 1940, with 82.0% for 1939, with 68.0% for 1938, and with 70.0% for the corresponding week for 1937.

The price situation in paper is confused and like that prevailing in practically all manufactured products, and in most commodities, prices are in a state of flux. The trend is apparently upward under the stimulus of a very active demand and some advances are expected to occur in the near future. In view of the relatively high prices for pulp, compared with paper, many grades of paper are yet out of line. If an equitable balance between raw material and the manufactured product is sought, or is expected, further upward revisions in prices on many grades of paper can be looked for. The current trend, in view of the government's efforts to prevent any general price rise of an inflationary character, is more hesitant than under the operation of the law of supply and demand. Only moderate advances are, therefore, expected in the paper market, and only when forced by higher costs.

Current resale prices on popular items show the moderate increases which have occurred since early summer. No. 4 sulphite bond, for example, is now quoted at from 8.90 to 10.75, delivered Zone 1, and No. 4 ledger at from 10.05 to 12.25, while the A grade of S. & S. C. book paper is currently quoted at from 9.60 to 11.00.

Newsprint production by domestic mills was 0.5% higher for the first eight months of this year, compared with last year, while Canadian output in that period was 3.6% lower. Total U. S. mill stocks were 13,459 tons; Canadian, 155,214 tons.

Chemical Pulp

Demand for all grades of chemical pulp continues heavy. Total stocks at paper and board mills were estimated at 387,000 tons on August 1, a decline from 391,800 tons on July 1. Total dock stocks on August 1 were 87,900 tons; pulp mills stocks 18,900 tons, making a total of 494,700 tons, or a decrease of 6,100 tons during the month of July, 1941.

Rags

Demand is reported active at this date in some grades of new and old rags, with an upward revision in a few grades. New white No. 1 shirt cuttings are up at from 8.00 to 8.25; No. 1 silesias, at from 4.50 to 4.75, and the fancy grade from 2.75 to 3.00.

Higher prices are also reported on No. 1 roofing rags, currently quoted at from 1.50 to 2.00, and on the No. 2 grade, at from 1.35 to 1.50. No other important price changes have been reported at this date.

Old Rope and Bagging

No important change in demand or prices has been reported in the old rope market this week. Prices are firm and the market is in a strong position.

A little less activity is reported in scrap bagging this week. This market is firm on all grades, under influence of limited supplies.

Old Waste Paper

Demand continues very heavy in the lower grades of waste paper. Late reports indicate that some mills have taken fair tonnages at prices above the maximum or ceiling prices announced by OPA and which are effective on October 1. This market still reflects a confused state but it is prevailing opinion that dealers will do their utmost to cooperate with the government and abide by the new schedule of prices formulated by OPA.

Twine

No important changes in demand or prices have been reported in the twine market at this date. All quotations are firm under an active demand for most grades of hard and soft fiber twines.

Paper Handlers Strike Ends

A three-week-old strike of paper handlers, members of Local 450, A.F.L., have returned to work in 57 New York paper houses. The walkout ended when the Paper Workers and Distributing Trades Union and the Paper Trades Association agreed to submit their dispute to arbitration.

The strike ended at a time when defense industries were fearing a shortage in blue-print paper. Army and Navy requisition blanks supplies also were cut.

The union is reported to be seeking a one-year closed shop contract and a $5 weekly wage increase.

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GLAZED TILE — KALAMAZOO TANK & SILO CO. — KALAMAZOO, MICHIGAN — WOOD

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, October 1, 1941.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. Demand reported steady for the week. The pulp is currently quoted at $35 per ton in barrels, at works; the powder is offered at $50 per ton, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm. Market reported tight for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN — Quotations on casein are firm. Demand active for the week. Market tight. Standard domestic casein, 20-30 mesh, is currently quoted at 28 cents per pound; 80-100 mesh, at 28½ cents per pound; all prices in bags, car lots. Standard Argentina casein is currently offered at 28 cents per pound. No quotations on French casein.

CAUSTIC SODA—Prices on caustic soda are reported firm. Demand reported good for the week. Solid caustic soda is currently quoted at $2.30 per 100 pounds, flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Market under full priority control. Chlorine is currently quoted at $2 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on most grades of rosin are unchanged for the week. "G" gum rosin is currently at $2.54 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $2.54 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.02 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand active, with current quotations nominal. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lot, f.o.b., shipping point. The quotation of $16 per ton on imported salt cake continues nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand reported active. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and continue unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported active. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.80 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@$6.00	
Superstandard	4.87½	" 5.25	
Northern Standard Wrapping	4.50	" 5.00	
Standard Wrapping	4.50	" —	
Tissues—Per Ream—Carlots			
White No. 1	1.07½	" —	
White No. 1 M. G.	.97½	" —	
White No. 1½	.85	" —	
White No. 2	.85	" —	
Anti-Tarnish M. G.	.90	" —	
Colored	1.00	" —	
Kraft	.90	" —	
Manila	.80	" —	
Unbl. Toilet, 1 M.	4.14	" —	
Bleached Toilet	5.60	" —	
Paper Towels, Per Case—			
Unbleached, Jr.	3.80	" —	
Bleached, Jr.	2.30	" —	
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.75	@10.75	
No. 1 Manila Wrapping, 35 lb.	5.50	" 5.75	
No. 2 Manila Wrapping, 35 lb.	5.25	" 5.50	
Boards, per ton—			
News	48.00	@ —	
Chip	48.00	" —	
Sgl. Mla. Ll. Chip	60.00	" —	
White Pat. Coated	75.00	" —	
Kraft Liners	60.00	" —	
Binders Boards	80.00	" —	

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$40.25@$47.25	$41.40@$48.50
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	32.20 " 37.75
75% Rag	24.75 " 29.00	25.90 " 30.50
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$13.05@$14.75
No. 2 Glossy Coated	11.80 " 13.50
No. 3 Glossy Coated	11.00 " 12.50
No. 4 Glossy Coated	10.60 " 12.00
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.	9.35 " 10.75
A Grade S. & S. C.	9.60 " 11.00
B Grade E. F.	8.85 " 10.25
B Grade S. & S. C.	9.10 " 10.50
C Grade E. F.	8.50 " 9.75
C Grade S. & S. C.	8.75 " 10.00
D Grade E. F.	8.25 " 9.50
D Grade S. & S. C.	8.50 " 9.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—	
Moist	No prices
Dry	No prices

(Delivered)

No. 1 Domestic and Canadian	40.00	@42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—		
Prime Bleached Sulphite	3.72½	@ 4.50
Prime Qualities—		
Easy-Bleaching Sulphite	3.17½	" 4.25
Strong Unbleached Sulphite	3.17½	" 4.25
News Grade, delivered		
Unbleached Sulphite	61.00	" 64.25

(On Dock, Atlantic Ports)

Kraft Bleached	4.12½	" —
Kraft Light & Strong	No price	
Kraft No. 1	3.60	" 4.75

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	2.75	" 3.37½

(Delivered)

Soda Bleached	3.30	" —

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	7.75	"	8.00
Blue Overall	5.00	"	5.25
Fancy	2.75	"	3.00
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.10	"	3.35
Miscellaneous	2.35	"	2.65
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.25	"	1.35
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.50	"	1.60
No. 2	1.35	"	1.50
No. 3 (bagging)	.95	"	1.00
No. 4	.90	"	.95
No. 5A	.90	"	.95

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

Fig. 0251
250 lbs. steam pressure

Instead of the usual wedge or disc, Fairbanks Sphero Valve has a revolving ball plug which wipes the seating surface clean. Its shearing action cuts through heavy solids and liquids. There is nothing on which foreign matter can accumulate.

The opening in the ball plug is the same size as that in the pipe. There are no obstructions, no frictional resistance. It's clear sailing for steam, oil, water, etc.

Wear on seat rings is reduced to a minimum by the rotary motion of the ball. And seat rings can be kept permanently tight by adjusting the wedge at bottom.

It can be opened or closed as "quick as a wink" by the long lever handle. A positive stop tells when fully open or closed.

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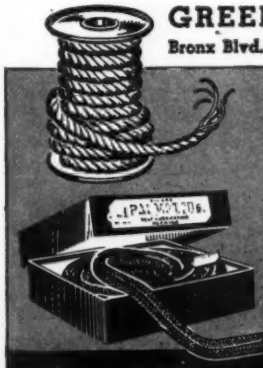

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No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.50	@	4.75
Wool Tares, light....	2.50	"	2.75
Wool Tares, heavy..	2.50	"	2.75
Bright Bagging.....	4.25	"	4.50
Manila Rope—			
Foreign	6.00	"	6.25
Domestic	6.00	"	6.25
Jute Threads.....	4.00	"	4.25
Sisal Strings.....	2.75	"	3.00
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.75	@	4.00
Ordinary Hard White No. 1....	3.25	"	3.50
Soft White No. 1..	2.50	"	2.75
Sott White Extra..	2.70	"	2.85
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag....	1.25	"	1.40
Solid Flat Book...	1.15	"	1.30
Crumbled No. 1 ..	.70	"	.75
Ledger White Stock.	2.30	"	2.45
Ledger Stock Colored	1.75	"	1.90
Manila—			
New Env. Cut....	3.25	"	3.50
New Cuttings.....	3.00	"	3.25
Old Kraft Machine Compressed bales..	2.00	"	2.10
News—			
No. 1 White News	1.50	"	1.60
Strictly Overissue.	.75	"	.80
Strictly Folded....	.65	"	.75
Corrugated	.82½	"	.90
No. 1 Mixed Paper..	.57½	"	.65

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp.....	.21	"	—
Fine Polished—			
Fine India.....	.26	"	—
Unpolished—			
Box	.17¾	"	—
Paper Makers.....	.17	"	—
Tube Rope.....	.19	"	—
Wall Paper.....	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope...	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java.....	.18	"	—
Mex. Sisal.....	.16	"	—
Manila	nominal		

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼	@	.07½
New White No. 2.	.01½	"	.01¾
Light Silesias.....	.04½	"	.04¾
Silesias, No. 1....	.04	"	.04¼
Black Silesias, soft	.03	"	.03¼
New Unbleached..	.07¼	"	.07½
Washable Prints...	.03¼	"	.03½
Washable No. 1..	.02	"	.02¼
Blue Overall.....	.04¾	"	.05¼
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales....	.03	"	.03¼
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.02	"	.02¼
Corduroy	.01½	"	.02
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.50	"	1.75
Repacked	1.80	"	1.90
Black Stockings (Export)	Nominal		
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1...	1.60	"	1.65
Domestic No. 2...	1.45	"	1.50
Roofing Bagging..	1.30	"	1.40

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	3.50	@	4.25
Domestic	3.50	"	3.75
Manila Rope.....	—	"	5.50
Sisal Rope.....	3.50	"	—
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	3.50	"	3.75
No. 2.....	—	"	1.50
Wool Tares, heavy...	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.50	"	3.75

Old Papers

(F. o. b. Phila.)

Shavings—			
Hard White Envelope Cuttings....$3.00		@	—
No. 1 Hard White Shavings	2.50	"	—
No. 1 Soft White.	2.15	"	—
White Blank News	1.65	"	—
No. 1 Mixed Shavings	—	"	—
Solid Ledger Stock..	—	"	—
No. 1 White Ledger.	2.12½	"	—
No. 1 Mixed or Colored Ledger.....	1.92½	"	—
No. 1 Books, heavy.	1.57½	"	—
Overissue Magazine..	1.67½	"	—
New Manila Envelope Cuttings	2.70	"	—
Container Manila....	—	"	—
No. 1 Assorted Kraft Cuttings (old).....	2.60	"	—
Kraft Paper.....	1.50	"	—
No. 1 Mixed Paper..	.65	"	—
Super-mixed Paper..	.70	"	—
Box Board Cuttings.	.72½	"	—
Corrugated Containers (old)	.80	"	—
New Corrugated Cuttings	.90	"	—
Overissue News....	.82½	"	—
No. 1 Baled News.	.75	"	—

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White.	3.75	@	4.00
No. 1 Soft White.	2.75	"	3.00
No. 2 Mixed.....	.90	"	1.00
Solid Ledger Books.	2.25	"	2.50
Overissue Ledger Stock	1.75	"	2.00
White Ledger Stocks	1.50	"	1.65
Mixed Ledgers	1.25	"	—
No. 1 Heavy Books..	1.20	"	1.30
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock	1.25	"	1.35
Manila Env. Cuttings	3.00	"	3.25
Manila Envelope Cuttings, extra quality	3.00	"	3.25
White Blank News..	1.70	"	1.80
No. 1 Kraft.....	2.25	"	2.40
Extra No. 1 Kraft...	2.65	"	3.00
Mixed Papers.....	.65	"	—
Print Manila	.75	"	—
Container Manila....	.65	"	.75
Old Newspapers.....	.70	"	.72½
Paper Wool Strings.	1.30	"	1.35
Overissue News ...	.65	"	.70
Box Board Chips....	.35	"	—
Corrugated boxes....	.90	"	1.00
Kraft corrugated boxes	1.60	"	1.75
New Kraft Corrugated Cuttings....	2.00	"	2.25
Screening Wrappers.	.85	"	.90

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	4.75	@	5.00
Sisal Rope.....	3.50	"	4.00
Mixed Rope.....	1.00	"	1.25
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Soft Jute Rope.....	5.00	"	5.50
Manila Rope—			
Foreign .....(nominal)			
Domestic	6.00	"	6.25
Jute Carpet Threads.	3.00	"	3.25
Bleachery Burlap....	7.50	"	8.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.25	"	—
Scrap Sisal.....	3.25	"	3.50
Scrap Sisal for Shredding	3.25	"	3.50
Wool Tares—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Aust. Wool Pouches.	4.75	"	5.00
New Burlap Cuttings	5.50	"	5.75
Heavy baling bagging	4.25	"	4.50
Paper Mill Bagging..	3.50	"	3.75
No. 2 Bagging.....	.50	"	.60

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.03¾	"	.04
New White No. 1.	.08	"	.08¼
New Light Flannelettes	.06	"	.06¼
Canton Flannel, Bleached	.07½	"	.08
Underwear Cutters, Bleached	.07½	"	.08
Silesias No. 1.....	.04¼	"	.04½
New Black Silesias..	.04½	"	.04½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached.....	.07½	"	.08
Blue Cheviots.....	.04½	"	.04¾
Fancy	.01¾	"	.02
Washable	.01¾	"	—
Cottons—According to Grades—			
Blue Overalls.....	.04¼	"	.04½
New Black, Soft..	.03	"	.03¼
Khaki Cuttings.....	.02¼	"	.02½
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.02	"	.02¼
New Canvas.....	.05½	"	—
B. V. D. Cuttings...	.06¼	"	.07

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	2.75	@	3.00
Miscellaneous	2.00	"	2.25
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.75	"	2.00
Old Blue Overalls...	1.60	"	2.00
Thirds and Blues....	1.50	"	—
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.25
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas .....(nominal)	
Dark Cottons.....(nominal)	
Dutch Blues.....(nominal)	
New Checks and Blues(nominal)	
Old Fustians.....(nominal)	
Old Linsey Garments.(nominal)	
New Silesias.....(nominal)	

Detroit Paper Products Corp. Sold

KALAMAZOO, Mich., September 29, 1941—Sale of the property of The Detroit Paper Products Corporation, formerly the Western Board and Paper Company, to Leon & William Slavin, proprietors of the Michigan Paper Stock Company, Kalamazoo, was reported here today.

Order confirming the sale was signed in Detroit on September 25 by Federal Judge Frank A. Pickard, under the federal bankruptcy laws providing for the reorganization of corporations, according to Harry Reinke, president of the Detroit corporation.

The Western Board and Paper Company was organized in 1908 and operated until 1930 when manufacturing operations were suspended. The plant laid idle until 1937 when it was taken over by the Detroit corporation and was used by them for a short time as a converting plant.

For some time the plant has been rented to the Sutherland Paper Company for storage purposes. It is assumed that the new owners will eventually resume manufacturing in the plant.

Buys Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 1, 1941—During the week ending September 13, the government purchased $179,946.56 worth of paper under the Walsh-Healey act, with the following orders:

$12,990 worth of manifold paper for War QMC N. J. from Resolute Paper Products; $16,248.60 worth of white paper for same from George W. Miller & Co.; $11,655.43 worth of stationery supplies for same from Consolidated Water Power and Paper Company; $28,456.39 worth of book paper for GPO from Stanford Paper Company; $45,712.50 worth of drinking cups for TVA from Dixie-Vortex Company; $13,402.64 worth of memo pads for Treas. Proc. from Old Dominion Paper Company; $20,745 worth of wrapping paper for War QMC N. J. from Graham Paper Company; $15,456 worth of toilet paper for Post Office Dept. from Park Tissue Mills, Inc.; $15,280 worth of writing paper for GPO from Paper Corporation of U. S.